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School Connectedness – Strengthening Health and Education Outcomes for Teenagers

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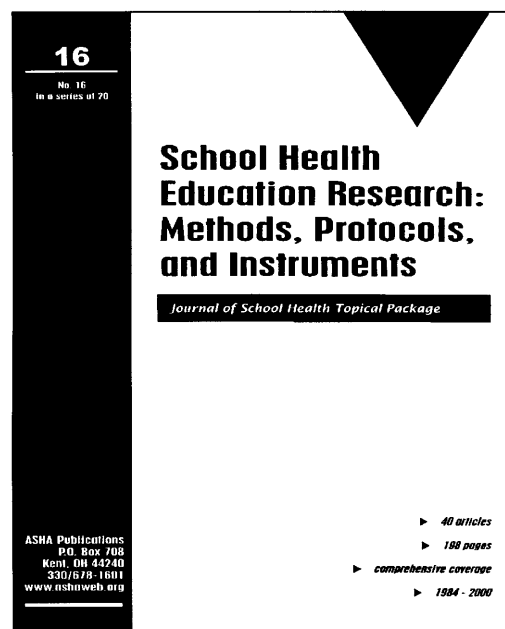
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Executive Summary

Robert Wm. Blum, Heather P. Libbey

School connectedness refers to the belief by students that adults in the school care about their learning and about them as individuals. Researchers have studied the concept under a variety of names such as school bonding, school climate, teacher support, and school engagement (see Libbey, pg 274). In the past decade the concept has gained currency among educators and school health professionals as an important factor that when present reduces the likelihood that young people will engage in health-compromising behaviors and concurrently increases the likelihood of academic success. In addition, recent research has shown that students who report high levels of school connectedness also report lower levels of emotional distress, violence, suicide attempts, and drug use.

While a significant body of research exists, the literature is spread across the health, educational, psychological, and sociological fields. Additionally, as noted, researchers have used a plethora of terms to explore similar constructs. Given the current focus on accountability and standards, without a clearly identified empirical base, school connectedness may seem like a “soft” approach that could not possibly impact the measures to which schools are being held accountable.

Given the mounting body of evidence supporting school connectedness as an important protective factor in the lives of young people, with support from the Centers for Disease Control and Prevention’s Division of Adolescent and School Health (DASH) and the Johnson Foundation, the Center for Adolescent Health and Development at the University of Minnesota convened an invitational conference in June 2003 at the Wingspread Conference Center in Racine, Wisc. The goal was to bring together key researchers with representatives from government and the educational and health sectors to identify the current state of knowledge related to school connectedness, what the research actually indicates, and from that body of knowledge would it be possible to synthesize a set of core principles to guide schools across America.

To achieve that goal, six papers were commissioned; some papers synthesized existing research while others undertook new analyses to explore key issues under consideration at the conference:

- Bishop JH, Bishop M, Gelbwasser L, Green S, Peterson E, Rubinsztaj A, Zuckerman A. Why We Harass Nerds and Freaks: A Formal Theory of Student Culture and Norms
- Catalano RF, Haggerty KP, Oesterle S, Fleming CB, Hawkins JD. The Importance of Bonding to School for Healthy Development: Findings from the Social

Development Research Group

- Libbey HP. Measuring Student Relationships to School: Attachment, Bonding, Connectedness, and Engagement
- Klem AM, Connell JP. Relationships Matter: Linking Teacher Support to Student Engagement and Achievement
- McNeely C, Falci C. School Connectedness and the Transition Into and Out of Health-Risk Behavior Among Adolescents: A Comparison of Social Belonging and Teacher Support
- Wilson D. The Interface of School Climate and School Connectedness: An Exploratory Review and Study

Additionally, consultations were held with federal agencies and non-governmental organizations committed to improving education in America. These included: American Association of School Administrators, Council of Chief State School Officers, US Department of Health and Human Services Maternal and Child Health Bureau and the Centers for Disease Control and Prevention, Division of Adolescent and School Health, National Association of Secondary School Principals, National Institute of Child Health and Human Development, US Department of Education Safe and Drug-Free Schools.

The invitational conference, “School Connectedness – Strengthening Health and Educational Outcomes for Teens,” was the outcome of the consultations. The conference was attended by representatives from national education policy organizations, school superintendents, principals, the US Departments of Defense, Education, and Health and Human Services, The White House, Centers for Disease Control and Prevention, foundation officers, and researchers. This special edition of the *Journal of School Health* presents the commissioned papers together with the Wingspread Declaration on School Connections. It is supported through a grant from the Robert Wood Johnson Foundation.

The first commissioned paper by Klem and Connell illustrates the relationship between teacher support, student engagement, and academic achievement. Using longitudinal data from the First Things First school reform model implemented in a large, urban school district, researchers trace how students who feel supported by their teachers (a measure of school connectedness) are more likely to be engaged in their schooling than peers who do not experience such support. The more engaged a student is in school, the better the academic performance and achievement.

In the second paper, Catalano et al discuss the role of school connectedness in reducing health risk behaviors and improving social and educational outcomes for children and youth. Catalano and colleagues summarize findings from two prevention programs created by the Social Development Research Group at the University of Washington. They examine nearly 20 years of longitudinal data to determine the importance of school bonding for healthy development and school-related outcomes.

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Dorian Wilson of the Center for the Study and Prevention of Violence at the University of Colorado, explores the relationships between school connectedness and school climate (essentially the relationship between the individual and the social context of school), and analyzes data from the Safe Communities-Safe Schools initiative to study how school connectedness and climate relate to bullying.

In the fourth paper, Bishop and colleagues at Cornell University contribute additional insight with their study of peer culture in schools and how it relates to students' sense of belonging in school. The authors explore the role of labeling that students do to each other and its consequences.

From the Center for Adolescent Health and Development at the University of Minnesota, Libbey provides an overview of the various terms and definitions of school connectedness throughout the research literature to clarify how it is used and what it means. Various measurement tools are detailed, and a comparison chart illustrates the various tools used across disciplines.

Finally, also from the University of Minnesota's Center for Adolescent Health and Development, McNeely and Falci undertook a longitudinal analysis of the National Longitudinal Study of Adolescent Health (Add Health) to identify if the perception of teacher relationships or school participation was more important in the concept of school connectedness and also in reducing self-reported involvement in health-risk behaviors. For every behavior they studied, the authors found that teacher relationships were key both to postponing involvement and, for many behaviors, reducing them once they began.

Based on both the empirical evidence presented in the papers and small group discussions that were the predomi-

nant structure for the conference, participants crafted a statement that has become identified as The Wingspread Declaration on School Connections (page 233). Core elements of the statement include:

- 1) Student success can be improved through strengthened bonds with school.

- 2) In order to feel connected, students must experience high expectations for academic success, feel supported by staff, and feel safe in their school.

- 3) Critical accountability measures can be impacted by school connectedness such as: academic performance, fighting, truancy, and drop out rates.

- 4) Increased school connectedness is related to educational motivation, classroom engagement, and better attendance. These are then linked to higher academic achievement.

- 5) School connectedness is also related to lower rates of disruptive behavior, substance and tobacco use, emotional distress, and early age of first sex.

- 6) School connectedness can be built through fair and consistent discipline, trust among all members of the school community, high expectations from the parents and school staff, effective curriculum and teaching strategies, and students feeling connected to at least one member of the school staff.

This special publication is presented with the hope and belief that we, the adults responsible for schools in America, will use what we now know makes a difference to create schools where every child and adolescent feels that the adults in the school care about them as individuals and their learning and where the school challenges every young person to reach his or her maximal potential setting high standards and coupling it with the supports needed to succeed. ■

Wingspread Declaration on School Connections

This declaration is based on a detailed review of research and in-depth discussions among an interdisciplinary group of education leaders convened at Wingspread, June 13-15, 2003.

THE DECLARATION

Students are more likely to succeed when they feel connected to school. School connection is the belief by students that adults in the school care about their learning as well as about them as individuals. Critical requirements for feeling connected include students' experiencing:

- High academic expectations and rigor coupled with support for learning;^{1,2}
- Positive adult-student relationships;^{3,4}
- Safety: both physical and emotional.^{4,5}

Increasing the number of students connected to school is likely to impact critical accountability measures, such as:

- Academic performance;⁶⁻¹⁰
- Incidents of fighting, bullying, or vandalism;^{11,12}
- Absenteeism;¹³
- School completion rates.^{8,14-16}

Strong scientific evidence demonstrates increased student connection to school promotes:

- Educational motivation;^{4,5,13,17,18}
- Classroom engagement;^{2,4,13}
- Improved school attendance.¹³

These three factors in turn increase academic achievement. The findings apply across racial, ethnic, and income groups.

Likewise, strong evidence exists that a student who feels connected to school is less likely to exhibit:

- Disruptive behavior;^{1,8,19}
- School violence;^{8,19}
- Substance and tobacco use;^{8,19}
- Emotional distress;¹⁹
- Early age of first sex.^{19,20}

Based on current research evidence, the most effective strategies for increasing the likelihood that students will be connected to school include:

- Implementing high standards and expectations, and providing academic support to all students.¹
- Applying fair and consistent disciplinary policies that are collectively agreed upon and fairly enforced.^{1,13,21}
- Creating trusting relationships among students, teachers, staff, administrators, and families.^{1,13}
- Hiring and supporting capable teachers skilled in content, teaching techniques, and classroom management to meet each learner's needs.⁸
- Fostering high parent/family expectations for school performance and school completion.^{1,8}
- Ensuring that every student feels close to at least one supportive adult at school.^{1,13}

Best Bets Warranting Further Research

- Programs and approaches that create positive and purposeful peer support and peer norms.

- Strategies that work to promote connection to school among disenfranchised groups.
- Analysis of the costs and effectiveness of different programs for fostering school connectedness.
- Evaluation of new and existing curricular approaches, staff and administrator training, and various institutional structures.
- Effects of students feeling connected on teacher morale, effectiveness, and turnover. ■

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Why We Harass Nerds and Freaks:

A Formal Theory of Student Culture and Norms

John H. Bishop, Matthew Bishop, Michael Bishop, Lara Gelbwasser, Shanna Green, Erica Peterson, Anna Rubinsztaj, Andrew Zuckerman

By a 2-to-1 margin (60% to 28%), American parents say “if forced to choose, they would prefer their sons or daughters to make C grades and be active in extracurricular activities rather than make A grades and not be active.”¹ Why? Certainly, they are not expecting their child to make it into the NFL. Probably, they believe extracurricular activities teach teamwork, time management, self-discipline, and other skills important later in life and on the job. Those who participate in sports during high school spend more time doing homework and less time watching TV, are less likely to drop out of high school, are more likely to attend college, and earn more as an adult.

There is controversy, however, about whether the association between sports and earnings reflects a causal relationship or a selection effect. While sports has causal effects on schooling, effects on earnings probably result from selection.² Regardless, getting As rather than Cs has much larger effects on high school and college completion rates and labor market success than participating in extracurricular activities. Nearly 99% of students with A averages (and comparably higher test scores) in eighth grade complete high school, while only 80% of C students graduate.³ For seniors in 1982 who planned on getting a BA degree or higher, chances of actually achieving that goal during the next decade were four times greater for A than C students.⁴ Grubb found that, holding years of schooling constant, an A rather than a C average in high school raised male earnings at age 31 by \$5,549 (20%) and female earnings by \$2,906 (17.7%).⁵

If parents knew these facts, one would think they would choose A grades over participation in extracurricular activities. Many may not know how important academic achievement is to future success. However, we suggest parents responding to the Gallup survey interpreted “makes A grades and not be active” as a code for nerd or dork, while athletics is the ticket to social status.

Coleman⁶ was the first sociologist to examine adolescent status systems. In the 10 Illinois high schools he studied in 1958, athletic achievement was the single most important criterion for high status. Tannenbaum,⁷ who conducted a similar study at a predominantly Jewish high school in New York City, asked students to react to written descriptions of eight fictitious students. The ratings from most positive to most negative were as follows:

1. Athlete - Brilliant - Non-studious
2. Athlete - Average - Non-studious
3. Athlete - Average - Studious
4. Athlete - Brilliant - Studious
5. Non-athlete - Brilliant - Non-studious
6. Non-athlete - Average - Non-studious

7. Non-athlete - Average - Studious

8. Non-athlete - Brilliant - Studious.

Note how being smart was acceptable if not combined with studiousness. Getting good grades did not get you into trouble with your peers, it was trying to get good grades.

Parents know adolescents can be cruel. They do not want their child rejected by peers. What is it like to be denigrated by one's middle school classmates? How common is a predatory anti-teacher peer culture in junior high school? Does it typically last into high school? How do peer norms of different crowds in a school get established? Who sets them? How are they enforced? Why are some crowds and individuals more influential in establishing peer norms that apply generally to all students? Why do some crowds have higher status than others? What happens to crowds and individuals who challenge normative dominance of the dominant/popular crowds? What are the long-term effects of being popular/unpopular during secondary school? What effects do context and educational policy have on norms that prevail in the youth culture?

These questions are being addressed by a research program of the Educational Excellence Alliance. This paper discusses the relationship between the study behavior and academic engagement of individual students, the norms and attitudes of close friends, and the peer culture of school. We are particularly interested in how the academic orientation of students and their close friends invites or protects them from harassment by peers.

BACKGROUND

Description of peer culture in this paper is based on review of ethnographic studies of adolescent peer cultures, structured and unstructured interviews conducted by the authors, and responses to survey questionnaires completed by nearly 100,000 middle school and high school students the past four years. The qualitative data reflect the memories of the paper's authors, most of whom had only recently graduated from New York State high schools in 2003, and taped interviews of 10th graders in eight secondary schools serving predominantly White, upper-middle class suburbs in New York State conducted during winter 1998.

Interviewers and respondents were matched on gender. Due to time limitations, both genders were studied in only one school, the culture of male students at another school, and that of female students at six schools (Table 1). The Educational Excellence Alliance collected survey data on attitudes and behavior of secondary school students at more than 400 schools. Multivariate analysis employed data from surveys completed between May 1998 and December 1999 by 35,000 students attending 134 schools. A copy of the Ed-Excel Student Culture survey instrument may be obtained from the first author.

Descriptions and hypotheses developed from qualitative research were used to develop a preliminary, working theory of how crowd and school norms influence peer harassment, student engagement in school, how students

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choose their crowd, and why crowds and schools have the norms that they have. Since the interview data is limited to public schools in predominantly White, upper-middle class neighborhoods, further work remains to assure generalizability. We test some of the theory's predictions using data from the Educational Excellence Alliance's survey of Student Culture, and conclude with suggestions for school administrators about strategies to influence the peer culture at their school.

Students and Peer Pressure

Literature on school peer groups draws a distinction between cliques and crowds. Cliques are small groups of friends who hang out together a great deal and are personally close. Crowds, by contrast, are larger, "reputation-based collectives of similarly stereotyped individuals who may or may not spend much time together....Crowd affiliation denotes the primary attitudes and activities with which one is associated by peers....Whereas clique norms are developed within the group, crowd norms are imposed from outside the group and reflect the stereotypic image that peers have of crowd members."⁸

Cliques. Clique members often share similar attitudes and behavior patterns, due in part to the influence clique members have on each other. However, it also arises from

selective entry and selective exit from the clique. Sociometric studies with repeated measurement of friendship nominations typically find substantial turnover. These studies also indicate students are often part of more than one friendship circle or clique.^{9,10}

Students uncomfortable with the norms and behavior of a particular clique need not join. If they discover other clique members heading down a path they don't like, they can shift their time and attention to another circle of friends, or try to develop new friends. Consequently, high school students must be viewed as choosing the normative environment of their clique. However, selection is not the sole reason that clique members are similar in attitudes and behavior. Cliques have norms and expectations for behavior. For example, a female student describes one such norm: "No getting smacked at a party, because how would it look for the rest of us if you're drunk and acting like a total fool? And if you do hook up with somebody at the party, please try to limit it to one. Otherwise, you look like a slut and that reflects badly on all of us. Kids are not that smart. They're not going to make distinctions between us."¹¹

Damico¹² studied effects of clique membership on academic achievement at a university lab school in Florida. Through 40 hours of observation in a six-month period, and interviews with teachers and students, she charted the

Table 1
Characteristics of High Schools Studied

	Respondents Gender	% to College	% Poor	Income Wealth Ratio	% Hispanic	% Black
Boynton Middle School and Ithaca High School	M	88%	14%	1.21	3%	10%
Harbor Edge High School	F	96%	4%	1.59	6%	1%
Newport Junction High School	F	94%	2%	1.87	10%	7%
Longview High School	F	88%	5%	.88	4%	1%
Madison High School	F	83%	4%	.79	6%	3%
Lakeside High School	F, M	89%	1%	2.54	10%	3%
Wittison High School	F	90%	6%	2.10	3%	1%
Coso High School	F	83%	4%	1.28	1%	5%
New York State Low-Need Districts		92%	3%	1.86	5%	3%
New York State Public School Average		78%	18%	1.00	18%	20%

	\$ per Student	Median Teacher Salary	Avg. # Students Per Grade	% Regent Diploma
Boynton Middle School and Ithaca High School	\$10,400	\$42,000	450	74
Harbor Edge High School	\$12,100	\$70,000	430	64
Newport Junction High School	\$13,400	\$65,000	260	80
Longview High School	\$11,500	\$80,000	1,000	55
Madison High School	\$10,700	---	330	53
Lakeside High School	\$11,600	\$59,000	70	65
Wittison High School	\$14,100	\$71,000	80	67
Coso High School	\$9,000	\$45,000	420	69
New York State Low-Need Districts	\$12,500	\$64,700	---	92
New York State Public School Average	\$9,800	\$49,500	---	78

clique structure of the school's ninth grade. Aptitude test scores were unrelated to clique membership. Nevertheless, the clique a student was in was a better predictor of GPA than an aptitude test taken during the year.

Crowds. Some stereotypic identities or crowds are respected by most of the students at school. In most schools, the Jocks, Preppies, and Populars represent identities that carry prestige and bring power. Other crowds – Freaks, Goths, Losers, Druggies, Nerds – represent the bottom of the status hierarchy. There also are other crowds whose status vary by school. In schools in this study, most of the student body were floaters or did not classify themselves as members of a distinctive crowd; they were in the middle in terms of status and popularity. Researchers who study peer cultures refer to this category of students as ‘the normals.’¹³

Boundaries Between Crowds/Cliques

Crowds represent different “identity prototypes” reflecting “different lifestyles and value systems.”¹⁴ One young woman explained: “I usually sit at the same place, with the same people. But then we usually walk around and talk to other people. I’ll go and talk to the guys. But then the other girls, I don’t really talk to ‘cause it’s weird. It’s weird ‘cause they’re them and we’re us. I can’t explain it.”

Crowd affiliation is most fluid at transition between schools, such as entry into middle school or transferring between schools. Many students said they were aware of their crowd assignment, and the assignment of most of their friends, within a month or so after they started middle school. Many were not happy with the stereotypic identity they were assigned, and tried for the next couple of years to escape. However, once classmates categorize you, changing categorization is difficult. In small schools changing one’s crowd essentially involves convincing classmates you have become a different person. Downward mobility is easy for them to recognize. Upward mobility is harder to accomplish.

Barriers to entry into high-status crowds are often substantial. Most student leaders in these predominantly White, upper-middle class suburban high schools were from high-status, all-rounder crowds (called “Preps” in many schools). These crowds are probably the hardest to get into. Entry typically requires one demonstrate achievement in both academics and a respected extracurricular activity. At most schools, President of the Science Club did not qualify. For most preps interviewed, participation in interscholastic athletics rounded out their resume and made them eligible for the prep crowd. Cool clothes also were necessary. Though a barrier for students from modest circumstances, most families in these communities could afford the additional cost of fashionable clothes.

Some activity-based crowds form around teams – cheerleaders, traveling soccer teams, auditioned choirs, “Thespians,” Math Olympics, Debate Team, and Chess Team – that require tryouts and auditions. Most high school athletic teams, by contrast, are open to anyone. Joining a team and showing up regularly at practice may gain one admission to the crowd associated with that team. However, practices typically require 10 to 15 hours a week, so students are unlikely to join if they do not enjoy the sport. If not good at the sport, the student may not be accepted into the crowd and become the focus of jokes. At large high

schools, playing time may be limited. In effect, such young people may be exchanging a respected position in a low-status crowd, such as the “Brains,” for a disrespected role in a high-status crowd such as the Jocks or Preps. Many students probably doubt such an exchange would improve their status.

Admission to high-status crowds with a fun ideology such as the “populars,” is typically by invitation. Even during the ‘wannabe’ phase when the aspirant is trying to become friends with members of the crowd, the “hangout time commitment” can be substantial and no certainty of success exists. In addition, aspirants must demonstrate to the crowd that they buy into the crowd’s view of what is cool, who is cool, and who is not cool. As such, an aspirant may need to abandon former friends.

These last two items are a price that everyone seeking to change crowd affiliation must pay. Deviant low-status crowds, according to students, are more accepting of new recruits than high-status crowds. However, they expect new members to honor the values and norms held by the other members of the crowd and to engage in the behaviors and wear the clothes characteristic of the crowd. Indeed, changing crowds can be costly and uncertain. But staying in a denigrated identity is more costly. What are the costs?

Students rejected by peers are targets of harassment and bullying. In surveys in 1998/1999, 13.1% of boys and 6.7% of girls were “teased, insulted, or made fun of to my face” “almost every day.” Another 19.5% of boys and 13.3% of girls were insulted to their face “about once a week.” In addition, 16% of boys and 12.7% of girls indicated that “almost every day” they were “insulted or made fun of behind your back.” If these rates of peer harassment in EEA schools represent the nation, 2.3 million secondary school students were directly insulted just about every day they came to school that year. Another 3.9 million students had about a one in five chance of being insulted to their face on any given day. Physical confrontations are less common. Almost 4% of students (an estimated 890,000 students) report being “pushed, tripped, or hurt by other students” almost every day. Another 4.3% report it happens about once a week. What is causing this peer harassment epidemic?

Bullies. Some students believe they gain prestige from other students by harassing and humiliating weaker, less-popular students. They entice victims to their clique, then surprise them with insults. One middle school student, trying to make sense of the behavior, said: “Maybe they like to prove to their friends that they’re cool, that they can put someone else down without [being put down themselves].” While other qualities – good in sports, outgoing, funny, or attractive – are more important; playing and winning the dominance game is, for some boys, a way of trying to gain respect and prestige.

Becoming a Pariah. Being a nerd is like having a communicable disease. One middle school student said: “If a ‘nerd’ goes over and sits next to a jock or somebody who’s really popular... - it doesn’t happen very often - they would probably tell him to leave.” Students avoid hanging out with the student since it sends a signal they are a nerd as well. Thus, students who are labeled as outcasts find it difficult to make new friends, and often lose old friends, which limits their ability to develop social skills that can help them get out of their predicament.¹⁵

Submissive Outcasts. To maximize the humiliation, submissive male outcasts are typically harassed in presence of other students.¹⁶ Humiliation comes not so much from harassment, all students get harassed to some extent, but from lack of an aggressive response. Friends of victims seldom intervene in defense, and sometimes join in the harassment in a joking manner. Friends are trying to escape their own outcast identity and fear that sticking up for a friend will prevent their escape. They fail to realize that not defending a friend simply stigmatizes them as cowards.

Non-aggressive outcasts generally are smaller and weaker than kids who harass them, so a “You Wanna Fight” response is seldom chosen. Another reason why they do not respond by starting a fight is they have been told by parents and teachers not to respond to insults by fighting. They do not want to lose the favorable opinion of teachers, the only people in the school who they feel are on their side.¹⁷

Looking Different. One student said: “This kid in our grade [10th grade] is really weird looking. He has really big ears and is really tall, really awkward looking. One of the seniors called him ‘dumbo’ and really hurt his feelings. He was crying. I laughed, only because it was funny. But that kid [the senior] got [the same treatment] back... when he was a freshman. They made him stand up on the table in his boxers and sing ‘I’m a little teapot’.”

Small Size. At Newport Junction High School, a female spent a great deal of time playing sports (15-19 hours a week) and hanging out (10-14 hours a week). Nevertheless: “I’m picked on all the time because of my size. I guess it’s supposed to be a joke, although sometimes I care... Just because I’m smaller, they know they can make fun of me. I’m not really upset - just angry.” Powerful support for the proposition that stature and social status during high school influences later success in the labor market comes from Persico, Postlewaite, and Silverman¹⁸ who demonstrated conclusively that in both Britain and the United States height as a teen-ager effects future earnings. When adolescent height was controlled, adult height and height at ages seven and 11 had no effect. Almost one-half of the effect of adolescent height on adult earnings was due to its impact on adolescent self-esteem and participation in extracurricular activities.

Consequences of Peer Harassment. Harassment induces some victims to withdraw from social interaction. Harassed students respond by avoiding the people and situations inflicting the harassment. Classmates laugh at something they say in class, so they do not participate in class discussions. Some try to become invisible, walking quickly from class to class avoiding opportunities to socialize. Often they avoid participating in after-school activities, and leave for home as soon as school dismisses. Such a response, however, makes things worse. When 60,000 students at EEA schools were asked if “Studying a lot tends to make you less popular,” only 18% agreed. But 60% agreed with the proposition that “Not spending time to socialize and hang out tends to make you less popular.” The climate of intimidation and threat of harassment also can induce withdrawal.

Actively Disliked and Rejected

At the large, suburban secondary schools studied,¹⁹ three types of students achieved outcast status. Overly aggressive boys poor at reading social cues, bullied others, and often

got into fights. They have made many enemies, and their antisocial behavior makes others feel insecure. Naturally, kids avoid them. However, bullying does not always make the bully an outcast. Verbal bullying of outcast students in the service of the norms and identity of a popular crowd is generally okay, at least in the eyes of popular crowd leaders. Some kids bully other in hopes of being accepted by a high-status crowd. It’s a way of proving one buys into the norms and values of the crowd.

Some groups publicly mock the identity of the school’s popular crowds. That is how groups like the Goths, Freaks, and Punks were seen by most other students. This may be the primary reason why it is common for other students to consider these groups as “choosing to be outcasts.” Our interviews, conducted before Columbine, encountered several cases where Freaks were being harassed. At Harbor Edge Middle School, one student said: “I’m usually the one picked on...mostly because of my [pink dyed] hair.” At Longview High School, we learned of a couple of incidents of serious physical harassment. One student said: “*We were all hanging out...and then a couple of freaks walked by and everybody started throwing things at them, like rocks and stuff...They just kept on walking. They just try to ignore it.*”

Studious, non-aggressive, socially unskilled students are frequently outcasts. A Harbor Edge Middle School student who eats lunch with the popular crowd, described Nerds as “*being very involved with school, asking a million questions in class, and not having much fun in their spare time...If someone asks a question and you’re considered a nerd, then people will be like, ‘Oh, shut up!’ But if you’re not [a nerd], then no one says anything. It’s a double standard.*” Despite sympathy for the nerds, she also said, “*Well my friends and I always makes fun of this one girl; all she does is study. It’s like she studies for college already [10th grade] – that’s so stupid.*”

At Newport Junction, a school with a strong international baccalaureate program and a 94% college attendance rate, a female characterized ‘dorks’ as “*constantly asking questions in class.*” This seems to annoy other students. She recounted what happened in her English class: “*Nobody likes this girl. She talks and says the stupidest things which make everyone want to cringe. It gets out of hand, so these boys stood up in the middle of class and shouted, ‘You’re a loser, just shut up and get out of this class.’ The teacher had no control.*” Yet, the Newport Junction students agreed that getting good grades did not make you a nerd. “*If you’re smart you’re lucky; no one considers you a nerd as a result. Everyone wants to get good grades now because of college, so you kind of envy those who do well.*”

Certain types of achievement – athletic, funny, friendly, outgoing, popular, and attractive – are better in the eyes of one’s peers. However, for academics, an optimal level of academic effort and achievement is the norm. One is sanctioned for exceeding it. Brown and Steinberg note that as a result, “Many of the most intellectually capable high school students strive to be less than they can be in order to avoid rejection by peers.”²⁰

SETTING NORMS

Who sets the norms? Based on these findings, cool/popular crowds establish the norms in middle school and in some small high schools. In large high schools many crowds exist, and the norms the leading crowd imposed in

middle school continue to influence because they effect the sorting of students into crowds. Each crowd maintains a distinct package of norms and these influence the members' behavior.

How do crowds choose norms? Norms are partially inherited from earlier generations of the crowd and partially established by the current leaders and core members. Popular crowds define school wide norms in ways that it reinforces the popularity and authority of the crowd members. If insecure students are afraid of asserting their individuality, they will evaluate themselves by what the secure, confident students consider "cool." High school crowds tend to value the abilities, resources, and personality traits that the crowd's leadership has in common. Since crowd leaders exemplify the crowd's norms, self-serving bias of the leadership works to reinforce the popularity and authority of the crowd's leadership. Individuals tend to join crowds and cliques that have similar value systems to their own, so a crowd's size depends on the popularity of the normative system and identity that it exemplifies.

The views, values, and actions of the popular crowd, and its leadership represent powerful influences on the peer pressures all students endure.

Popular Individuals

Nearly 100,000 students at Alliance schools were given a list of 12 traits and asked to describe the qualities of the members of the "most popular crowd (your gender)...during the first year of middle or junior high school..." Trait were ranked as: cool clothes (64%), attractive (61%), funny (60%), good in sports (55%), outgoing (53%), self-confident (48%), tough (31%), not attentive in class (24%), worked hard for grades (22%), attentive in class (21%), smart (19%), and made fun of those who study (18%). Traits most often associated with being popular reflected services – telling jokes, entertaining, participating in sports – that popular students provide for classmates. An A student and a member of the "Soccer Girls," one of the popular cliques at Harbor Edge High School, said: *"The group I'm thinking of probably considers themselves to be the popular crowd. I don't know. I do sports, but maybe other people – those involved in Model Congress or World Interest club – consider themselves the popular ones."* When asked what makes the popular crowd popular, she indicated, *"Everyone wants to have a good time, no matter who your friends are. Sports are fun....Battle of the Classes, Sports Night, parties, hanging out...They're all good time. The actual individuals are good people too; they're interesting, they have different talents and abilities and attractable themselves. [Their popularity is] not just based on what they do."*

Popular Crowds

Role Models. Popular students are role models and exemplars of "cool." Many of their peers respect them, so their opinions about who and what is "cool" and who and what is "uncool" are quite influential. Their example influences the dress, attitudes, and behavior of other students much more than parents, teachers, and school administrators. New entrants into middle school are particularly susceptible to such influences. New entrants are insecure, and often hope to eventually join a high-status crowd.

Strong Social Skills. Popular crowd membership

confers opportunities to learn from the acknowledged local masters of adolescent social interaction and to practice these social skills. Members become better performers in a middle school status and dominance game with very different rules than the elementary school counterpart. Since popular students already have been sorted into high-status crowds, students outside these crowds are less likely to have someone in their group who can teach and model the behavior needed to become popular.

Validating the Popularity of Others. Since the primary signal of a person's popularity is who one hangs out with, reputation as a popular person depends on *"being allowed to hang out with them [one of the popular crowds]."* As one respondent said, *"If you're friends with popular people, you're considered more popular."* Inviting someone from outside the crowd to a party or including them in lunchtime conversation may be small matter to a popular student, but it sometimes has an important positive demonstration effect on their reputation. This works for groups as well as individuals. If a clique interacts with a popular group, the clique's reputation improves.

Admission Rules. Around most popular crowds there are "wannabes" actively trying to join the crowd and potential "wannabes" who would try if they thought they had a reasonable chance of success. Crowd members control and limit entry. Often, core members of a clique have the additional power of blackballing potential entrants. For example, at one school, each member of a group was allowed to invite an outsider to sit at their lunch table several times a month, but they must meet at the lockers for other members to approve it first, and then they cannot exceed their limit. *"We don't want other people at our table more than a couple of times a week because we want to bond and bonding is endless."*¹⁰

Attracting the Opposite Sex. Since cross-gender socializing often occurs in reasonably stable groups, male and female cliques often pair up. Thus, a new romantic relationship can help a student gain entry into a popular clique. This gives popular students a further edge in the competition for attention from the opposite sex.

Posers. "Posers" are individuals or groups who copy the dress and behavior of a high-status crowd, without being in that crowd. By adopting the popular crowds' norms and behaviors as their own, "Posers" assist in transmitting the norms and values of the popular crowd to the school community.

Power Players and Dominance by Insult. Insults from high-status peers are more damaging to one's self-esteem and reputation than insults from low-status peers. Insults from unpopular students can be deflected by calling them names, like "dirt bag" or "low life," that give life to the way others at the school view them. Responses to taunts from popular students is more difficult. Insults are more effective when they target a vulnerability of one's opponent.¹⁷ What aspect of the popular student's persona can the victim counter-attack? The popular person exemplifies what most of the victim's classmates respect.

Pariah Status. When an unpopular kid is harassed by an individual from the popular crowd, "Wannabes" and "posers" may view the incident as an opportunity to improve their status by insulting that victim. Individual popular students can wittingly or unwittingly single out specific students for harassment by others.

Normative Hegemony. The quickest way to change a school's peer norms is to persuade the leaders of the popular crowds that such a change is desirable. The student body is used to following their lead so if they advocate the change and adjust their own behavior to the new requirements others are likely to follow.

A distinction between membership in a popular crowd and the power of this crowd to set the normative environment of the school must be noted. In small schools, students interact with all class members, so popularity is based on one's history of interactions with classmates. However, in large schools students have only superficial contact with a significant portion of their grade, and even less contact with older and younger students. This is particularly true in large middle schools that combine students from different elementary schools. Inside the group one interacts with daily, status and popularity depend on the history of interactions between group members. One's social status and popularity outside this group, however, is defined by the stereotype assigned to one's crowd and the outsider's valuation of that stereotype. Crowd assignment occurs in the first weeks of middle school and is difficult to change. Conformity pressures and learning effects tend to generate contrast effects that make boundary crossing even more difficult.

Given the benefits of popular crowd membership, many students try to join one of them. By high school, however, many students at the schools studied had gotten tired of the dominance by insult game that was important in middle school. A Longview High School student said: *"The people who used to make fun of other people don't anymore because it doesn't really matter. It's not important anymore...because everyone's kind of grown up and everyone's beyond that now."*

STUDENT CULTURE AND THE LEARNING ENVIRONMENT

Social norms and values of students represent contested territory in most high schools. Learning, according to the students interviewed, represented only one reason for attending school. Socializing, sports, and extracurricular activities were equally as important for many students. Other students indicated they came primarily because they were required to by parents and the law.

Teachers often express discontent with students' commitment to learning: "lack of student interest" represents the single most important reason for poor achievement. Many principals feel helpless in the face of a student culture that they sense is a more powerful influence than the threat of failing courses or not graduating. The principal at Longview High School said: *"We have mandated extra help right now... Any child who fails one of the four major subject areas is scheduled for mandated extra help. I will tell you – they didn't go. The kids that have gone, I can only assume...I have to think that a kid who does go has to get something out of it. But, they don't go. And why don't they go? Well, someone said, what do you do when they don't go? We notify the parents. How much more discipline, how much more can we do? It would be an impossible task. What discipline is there if you don't go to mandated extra help? Well, that you'll keep failing..."*

Most high school teachers enjoy the subject they teach, and hope students will find it as interesting. Some students

fit the "learning for its own sake" ideal: 42% of students in EEA high schools said they "enjoy doing math problems," 52% "like the books and plays read in English," and 37% "find the history and science textbooks interesting." Yet, 48% agreed with the statement: "If I didn't need good grades, I'd put little effort into my studies." When all EEA students were asked why they worked hard in school, extrinsic reasons were cited: 77% said, "I need the grades to get into college," 58% "Help me get a better job," and 56% "Prepare myself for tough college courses."

Students are not of one mind on these matters. Different crowds and cliques maintain distinct priorities about learning and reasons for wanting to learn. These peer group norms matter because "Subgroups of youths tend to be granted increasing levels of hegemony in the establishment of social norms and values."²¹

What are these norms? We asked the 35,000 students who completed the Ed-Excel questionnaire during 1998-1999 the following set of questions. "Do you think your friends would agree or disagree with the following statements?" 1) It's not cool to frequently volunteer answers or comments in class. (Agree = 19%, Disagree = 81%); It's not cool to study real hard for tests and quizzes. (Agree = 15%, Disagree = 85%); It's not cool to be enthusiastic about what you are learning in school." (Agree = 27%, Disagree = 73%); It's not cool to be competitive about grades. (Agree = 51%, Disagree = 49%); It's annoying when other students talk or joke around in class. (Agree = 40%, Disagree = 60%); It's annoying when students try to get teachers off track. (Agree = 42%, Disagree = 58%). We also asked about friends' behavior: 24% said "My friends make fun of people who try to do real well in school," and 56% said "My friends joke around and annoy the teacher."

A THEORY OF STUDENT PRIORITIES

To state the theory formally, we begin by laying out notation and describing how the student's utility maximization problem is structured. We assume that students allocate their free time among four activities: studying or learning (T^L), extracurricular activities including sports (T^S), hanging out with peers (T^P), and solitary leisure activities such as reading, video games, and television (T^V) subject to a time budget constraint.

1) Time constraint = $1 = T^L + T^S + T^P + T^V$.

Learning depends on academic ability and previous learning (A^A), quality of instruction (Q^I), and free time devoted to learning (T^L).

2) Learning = $L_i = L(A^A, Q^I, T^L)$ where $L_T > 0$ and $L_{TT} < 0$. Learning generates three kinds of rewards: *Intrinsic Rewards*, $J(L^i)$, reflect the joy of learning; *Direct Extrinsic Rewards*, $\$(L^i)$, depend directly on how much the individual learns during high school, and includes effects that operate through college admission, years of schooling completed, and higher wages holding schooling constant. It also includes the benefits parents derive from the economic success of their children and the honor and prestige given to those seen as high achievers. These benefits are larger if the skills developed in school are signaled to universities, employers, and parents; *Rank Rewards*, $R^i(L^i - L^m)$, depend on the extent to which the student learns more than other students. This would include effect of class rank and GPA relative to the school mean (L^m) on the present discounted value of lifetime earnings and self-esteem derived from

comparisons with others.

$$3) U^L = I(L^i) + \$ (L^i) + R^i(L^i - L^m).$$

4) $U^S(A^S, T^S)$ = Utility from extracurricular activities depends on time and ability (A^S).

5) $U^P(A^P, T^P)$ = Utility from socializing depends on time devoted and ability (A^P).

6) $U^V(T^V)$ = Utility from solitary leisure depends solely on time devoted to it.

Students seek to avoid being harassed, insulted, teased, and ostracized by peers. In some secondary schools a small number of students who exemplify denigrated traits and behaviors are targeted for harassment and ostracism. The theory treats this kind of peer harassment as punishment whose social purpose is to deter certain types of 'anti social' behavior (eg, squealing on peers, competing for grades, sucking up to teachers, deviating from the group's dress code) and encourage 'pro social' behavior (eg, letting friends to copy homework). Besides avoiding harassment, students desire for popularity – have many friends, hangout with students in the leading crowd, etc. We are concerned with how popularity and harassment depend on allocation of time among learning/studying, socializing, extracurricular activities, and solitary leisure and on success in learning.

We hypothesize that popularity and harassment depends on four things: *Accomplishment in respected extracurricular activities*, $\kappa A^S T^S$, where κ is the valuation peers place on sports and extracurricular achievements when they judge another student's popularity and decide whether to harass him; *Socializing with friends*, $\eta A^P T^P$, where η is the impact of socializing on peer judgments of popularity and the student's likelihood of avoiding harassment; *Conforming to peer group norms about academic commitment and achievement*, $\delta (L^i - L^N)^2$, where L^N is the school norm specifying the optimal level of academic achievement chosen by the leading crowd for the whole school or by the leaders of the crowd to which the student belongs and $\delta < 0$ measures how strong conformity pressures are similar to peers in one's commitment to academic learning [$\delta < 0$]; and *Costs that studious individuals impose on others by pushing ahead of them in a competitive ranking system*, captured by $\Theta R_j(L^i - L^m)$ where L^m is the mean achievement level at the school and Θ is less than zero when peers harass or ostracize the studious as "nerds...teachers pets...or acting White." When $\Theta = -1$, the anti-nerd pressure against academic effort exactly offsets losses that trying harder imposes on others $R(L^i - L^m)$ because greater achievement for person 'i' increases school mean achievement, L^m , and lowers everyone else's position relative to the mean (eg, rank in class). If $\Theta < -1$, anti-nerd peer pressure imposes larger costs on the studious than they impose on their classmates. If students honor those who win academic competitions, Θ would be positive. Schools with competitive admissions and nearly universal participation in AP courses such as Stuyvesant High School in New York City maintain a positive Θ . Summarily, we have (7) an equation describing the determinants of harassment and popularity.

$$7) H_i = \kappa A^S T^S + \eta A^P T^P + \delta (L^i - L^N)^2 + \Theta R_j(L^i - L^m) + u^i$$

Most students care about their popularity with peers. The weight, ϕ_i , they attach to their popularity with other students will, however, vary across individuals.

$$8) U_i = J(L_i) + \$ (L_i) + R_j(L^i - L^m) + U^S(A^S, T^S) + U^P(A^P, T^P) + U^V(T^V) + \phi^i H_i$$

$$9) U_i = J(L_i) + \$ (L_i) + R_j(L^i - L^m) + U^S(A^S, T^S) + U^P(A^P, T^P) + U^V(T^V) + \phi^i [\kappa A^S T^S + \eta A^P T^P + \delta (L^i - L^N)^2 + \Theta R_j(L^i - L^m)]$$

We then maximize (8) with respect to the time budget constraint (1). We obtain the following first order conditions for learning time, for extracurricular time, for socializing, time and for solitary leisure time:

$$10) (J_T + \$_T + R) L_T + 2\phi \delta (L^i - L^N) L_T + \phi^i \Theta R_L L_T = \lambda$$

$$11) U^S_T + \lambda^{-1} \kappa A^S T^S_T = \lambda$$

$$12) U^P_T + \lambda^{-1} \eta A^P T^P_T = \lambda$$

$$13) U^V_T = \lambda$$

Where $U^S_T > 0$, $U^S_{TT} < 0$, $U^P_T > 0$, $U^P_{TT} < 0$, $U^V_T > 0$, $U^V_{TT} < 0$.

This set of first order conditions will look familiar to economists though less so to health care providers. It simply contends students will allocate time between activities that equalizes the marginal utility of the last hour devoted to each activity. The lagrangian multiplier, λ , is conventionally interpreted as the marginal utility of time. Start by looking at (12), the first order condition for time devoted to socializing. It says individual students increase time devoted to socializing if the utility they personally derive from it goes up (first term) or if the popularity/prestige they get from socializing goes up (second term). The popularity benefits of socializing are higher for people who are good at it (high on A^P), when the peer group greatly values it (η increases), and when individuals are particularly sensitive to what peers think of them (ϕ_i is large). We know that η is positive in most schools. Sixty percent of respondents in the EEA survey indicated that "not spending time to socialize and hangout tends to make you less popular." Thus, $\phi_i \eta$ measures the intensity of peer pressure to socialize and $\phi_i \kappa$ measures peer pressure to participate in extracurricular activities. The stronger this pressure the more time will be spent socializing or participating in extracurricular activities, and the less time will be available to study and watch TV. This is the first mechanism by which peer pressure discourages learning. Peers encourage each other to hangout and reward those who do with popularity. Unless studying can be done simultaneously with hanging out, the result is less study time and less learning.

Schools might counter this kind of pressure by organizing study groups, assigning group projects that require face-to-face discussions outside school hours, and promoting extracurricular activities with an academic focus such as debate club and interscholastic academic competitions. Time to socialize is an appeal of extracurricular activities. A portion of the time during athletic practice, chess club, and yearbook meetings is social.

The second type of peer pressure comes from the "Be Like Me" conformity pressure from the school's leading crowd(s) captured by $2\phi_i \delta (L^i - L^N)$ in equation 10. Remembering that δ is negative, this expression is positive when $(L^i - L^N)$ is negative (ie, student has below average grades). Thus, students with low grades are encouraged to try harder and students with grades higher than those of the leading crowd are discouraged from studying. This fact implies that the least-popular students and, therefore, the ones most likely to be harassed by peers, are students whose commitment to school is above or below the norm set by the leading crowd.

This hypothesis will be tested in the empirical work to come. In the empirical work, I assume L^N is the average

achievement level of students. However, our interviews and Reinhold Niebuhr's dictum that groups always act in their own self-interest suggest that a powerful leading crowd will impose on the school a system of normative evaluations (eg, values for L^N, ϕ, κ, η , and Θ in this model) that place it at the top of the school's prestige hierarchy. This implies that if popular crowd leaders set challenging academic goals for themselves, their commitment to academic achievement will legitimate a 'study hard' norm for their entire student cohort as occurred with Lakeside's 11th grade and the class of 1998 in Ithaca High School. Alternatively, a few charismatic leaders promoting a fun ideology might have the opposite effect.

One other reason for peer pressure against studying is the zero sum nature of the competition for good grades caused by grading on a curve and the use of class rank as a criterion for awarding a fixed number of prizes and for admission to competitive colleges. $\phi^1 \Theta R_L L_T$ is the term

that captures this effect. Fifty-one percent of EEA students surveyed indicated: "It's not cool to be competitive about grades." Another question evaluated whether students believe that hard work by other students makes it harder for them to get good grades. Our theory predicts that this belief should undermine incentives to study, and we will test that hypothesis.

Another implication of the theory is that since student achievement is measured with error and imperfectly signaled to the labor market, private rewards for learning will be smaller than the social returns to learning and this will lead to under-investment in studying during school. This also implies that better signaling of student achievement to the labor market will increase $\$L$ and this in turn should increase student effort levels.

TESTING THE THEORY

To conduct a preliminary test of the theory, we estimated

Table 2
Harassment, Study Effort and Grades in School*
[Beta Coefficients]

	Teased Verbal Harassment	No Try Because of Friends	Study with Friends	Engagement in Class	% of Homework Done	Grade Point Average	SD of Independent Variable
Study Behavior - Endogenous							
Verbal Harassment (SqRt #)	***	0.89	---	-.051	-.055	-.007+	3.51
No Try Because Friends (SqRt #)	---	***	---	---	---	-.013	2.46
Study with Friends (SqRt #)	---	---	***	---	.076	.018	3.01
Engagement in Class	---	---	---	***	---	.048	1.00
Percent of Homework Done	---	---	---	---	***	.269	.224
Peer Pressure - Exogenous							
'A' Hard to Get if Others Study	.043	.070	.025	-.047	-.041	---	.681
Hard if Others Study (School Avg.)	---	.022	.029	-.001+	-.001+	---	.118
Good Student Leading Crowd	---	---	.054	.003+	.016	---	---
Bad Students Leading Crowd	.071	---	---	-.021	-.009+	---	.99
Negative Peer Pressure	.100	.160	-.046	-.065	-.002+	---	1.00
Positive Peer Pressure	.012+	.081	.201	.069	.051	---	1.00
Annoyed When Others Disrupt	.008+	.015	.094	.188	.083	---	1.00
(Negative Pressure - Sc Mn) SQ	.021	---	---	---	---	---	1.51
(Positive Pressure - Sc Mn) SQ	.024	---	---	---	---	---	1.79
(Annoyed - Sc Mn) SQ	.055	---	---	---	---	---	1.32
(GPA - 3.0) SQ	.027	---	---	---	---	---	1.28
Pro-Learning Norm - (Sc Mn)	-.014+	.027	.021	.013+	-.008+	---	.665
Student Choices and Time Use							
Hours of Homework Per Day	---	---	---	---	---	.040	1.44
Hours of TV Per Day	---	---	-.056	---	---	-.022	2.13
# Accelerated Courses	.025	.001+	.047	-.023	.015	.057	1.69
% of Honors Courses	.017	-.025	.089	.013+	.049	.223	.341
% Basic Courses	-.002+	.021	-.034	-.025	-.035	-.054	.369
% Heterogeneous Classes	.006+	.001+	-.009+	.003+	-.004+	.004+	.307
# of Study Halls	.023	-.017	.011	---	-.033	-.011	3.42

* Analysis of data on 35,604 students from 134 schools in the Northeast that are members of the Educational Excellence Alliance. Table documented in Insultfin.1st. All models included three variables not shown: individual is of mixed race, data on race is missing, data on family status is missing. The model predicting harassment also included an interaction of middle school with Anti-Learning Leading Crowd and with accelerated courses. A + to the right of a coefficient indicates it is not significant at the 5% level on a two-tailed test.

ordinary least squares models predicting six outcomes: Incidence and extent of teasing and verbal harassment by peers (HARASSMENT); Incidence and frequency of students admitting lack of effort on a test or project because they were afraid of what friends might think (NOTRY); Incidence and frequency of students studying together outside school or talking with friends about what was learned in school (STUDY TOGETHER); An index comprised of questions about paying attention in class, contributing to classroom discussion, and not daydreaming

(CLASSROOM ENGAGEMENT); Proportion of homework assignments a student completes on average across four core subjects (HMWK COMPLETE); and grade point average on a 4.0 scale.

Our purpose is to assess how much of the variance of peer harassment and student study effort and engagement (the first five variables) can be predicted by the racial and socioeconomic character of the school and background characteristics of students and how much variance can be predicted by the attitudes and culture of the school and of

Table 2 (continued from previous page)
Harassment, Study Effort and Grades in School*
[Beta Coefficients]

	Teased Verbal Harassment	No Try Because of Friends	Study with Friends	Engagement in Class	% of Homework Done	Grade Point Average	SD of Independent Variable
School Characteristics							
Middle School	.024	.026	.032	.017+	-.013+	.078	.320
Grade in School	.000+	-.016+	.020	-.067	-.106	-.003+	.980
All Teachers Good (Sc Mn)	-.023	-.002+	.026	.044	.018	-.001+	.251
All Teachers Demanding (Sc Mn)	-.022	.008+	.029	.050	.028	-.039	.192
Parents Motivate (Sc Mn)	---	-.022	---	---	---	---	---
Future Extrinsic (Sc Mn)	---	.000+	.00	-.004+	.021	---	.218
Student Attitudes							
Intrinsic Motivation Index	-.014	.001+	.151	.292	.199	---	1.00
Future Extrinsic Motivation	-.011	-.031	.017	.090	.135	---	1.02
Parents Motivate Student	.055	.007+	.017	-.004	.000+	---	1.00
Characteristics of Student							
Self-Reported Ability	-.002+	-.081	.045	.114	.077	.213	1.97
Reported Ability (School Mean)	.018+	.008+	.006	.003+	-.013+	-.036	.419
Male	.075	.063	-.034	-.004+	-.043	-.076	.498
Parent Schooling	.010+	.002+	.043	.040	.072	.070	2.89
Parent School (School Mean)	.018+	-.023	.066	-.002+	.000+	-.009+	1.19
Single-Parent Family	.019	.020	-.009+	-.025	-.056	-.057	.408
% Single Parent (School Mean)	-.023+	.013+	-.011+	-.002+	-.069	-.007+	.122
# of Siblings	.001+	.033	.005+	-.025	-.062	-.045	1.50
Black	.007+	.044	.001+	-.027	-.026	-.097	.316
Hispanic	-.021	.011+	-.006+	-.017	-.037	-.024	.192
Asian	-.030	.029	-.004+	-.011	.006+	.009	.210
Native American	.015	.023	.010+	-.020	-.020	-.002+	.075
% Black (School Mean)	.011+	-.047	-.035	-.039	.000+	.019+	.172
% Hispanic (School Mean)	.000+	.007+	-.002+	-.003+	-.002+	-.052	.073
% Asian (School Mean)	-.022	-.011+	-.005+	.037	.001+	-.016	.061
Mean Dependent Variable	3.425	.849	4.283	.017	.818	2.97	
S.D. of Dependent Variable	3.513	2.461	3.014	1.01	.224	.84	
RMSE	3.374	2.21	2.64	.817	.190	.593	
R SQ	.0624	.0874	.2215	.3031	.2312	.465	
Number of Observations	24,772	27,190	26,917	26,313	27,443	25,677	
			st	E	h		

* Analysis of data on 35,604 students from 134 schools in the Northeast that are members of the Educational Excellence Alliance. Table documented in Insultfin.1st. All models included three variables not shown: individual is of mixed race, data on race is missing, data on family status is missing. The model predicting harassment also included an interaction of middle school with Anti-Learning Leading Crowd and with accelerated courses. A + to the right of a coefficient indicates it is not significant at the 5% level on a two-tailed test.

the student's clique. The final model uses the peer harassment variable and study effort and engagement variables to predict grade point average. Peer culture and attitudes toward learning will be assumed to influence this final outcome, student GPA, only through their effects on peer harassment, study effort and engagement.

Control Variables

Controls for student background include gender, grade in school, a dummy variable for seventh or eighth grade, parent's education, number of siblings, living in a single-parent family, self-reported ability, dummy variables for being African American, Hispanic, Asian, Native American, mixed ethnicity, and did not answer questions about race. Controls for school characteristics included mean for parents' education, proportion of students in single-parent families, African American students, proportion Hispanic students, proportion Asian students, mean self-reported ability of students, mean for the school on the 'teachers are demanding' index, and mean on the 'teachers are interesting and motivating' index. School means on the 'parents motivate me' index and 'future extrinsic motivation' index were included in the models predicting study effort and engagement. Items included in each of the attitude indices may be obtained from the first author.

The curriculum track pursued by students was controlled by including number of accelerated courses taken in middle school, share of the semester's courses that were honors or AP courses, share of 'basic' courses or local in New York State parlance, share of heterogeneous or mixed courses (share of college prep courses was the excluded category), and number of study halls. To prevent overestimation of the

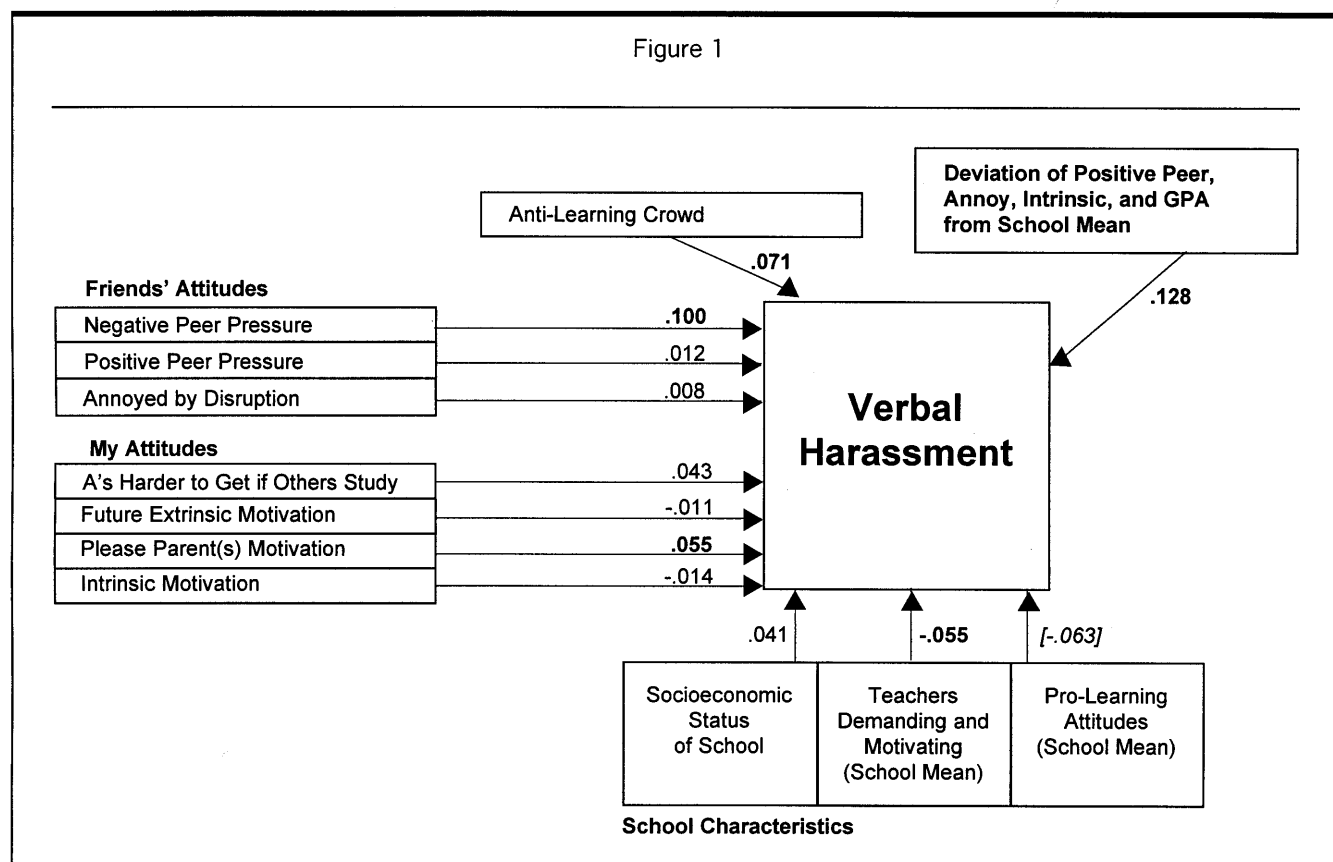
effects of clique norms and attitudes, controls for student's self-reported motivation were included: intrinsic motivation, future extrinsic motivation, and parents motivate me index.

Hypotheses

The primary focus was the effect of student culture. Students experience a school culture specific to their grade and gender, and to the attitudes and norms of their clique of close friends. Researchers attempted to measure both. An overall pro-learning school environment index was constructed by taking an average of the intrinsic motivation scale, positive peer pressure scale, and the 'it's annoying when students joke around scale' for the student's grade, gender, and school. We expect a pro-learning environment to be associated with less harassment, fewer students saying they do not try, more studying together, and greater engagement in school.

We also calculated a grade/gender/school average of answers to "If others study hard, it is harder for me to get good grades." This variable measured the belief within the student body that they are engaged in a zero sum competition with their classmates. We expect it to have a negative relationship with engagement and homework completion and a positive relationship with harassment, NOTRY and study together. The reason for this last prediction is our expectation that students will want to learn from the smartest student in their friendship circle and to monitor how hard others are studying when they perceive their school to have a competitive grading system. Other student culture variables are measured at the clique level. These variables are scales constructed by averaging normalized

Figure 1



answers to two to six questions about the attitudes and norms of friends.

Scales were developed for negative peer pressure, positive peer pressure, annoyed when others joke around in class, the middle school leading crowd was anti-learning, and the leading crowd was pro-learning. Our theory predicts that negative peer pressure and anti-learning leading crowd will have a positive relationship with harassment and NOTRY, and a negative relationship with engagement and homework completion. We also predict that positive peer pressure, the annoyed when others joke around scale, and pro-learning leading crowd will form a positive relationship with studying together, engagement, and completing homework. The final peer pressure variable assessed student beliefs about whether it's harder for them to get good grades when others study hard. We expect this to have a positive relationship with harassment, NOTRY, studying together and a negative effect on engagement and homework completion.

The final set of peer culture variables measured deviation from the school-wide norm of the student's GPA and his clique's academic commitment – positive peer pressure, annoyed when others joke around scale and negative peer pressure (reflected). We expect students who significantly deviate from school norms on these variables will experience more harassment. We have no reason to expect clique academic commitment variables to have a curvilinear effect on the other outcomes studied, so squared deviations from school norms were not entered in any of the other models.

Table 2 contains standardized regression coefficients from models predicting all six outcomes. A '+' to the right of a coefficient implies the effect is not statistically significant (at the 5% level on a two-tail test). Column 7 of Table

2 provides standard deviations (SD) of independent and dependent variables.

RESULTS

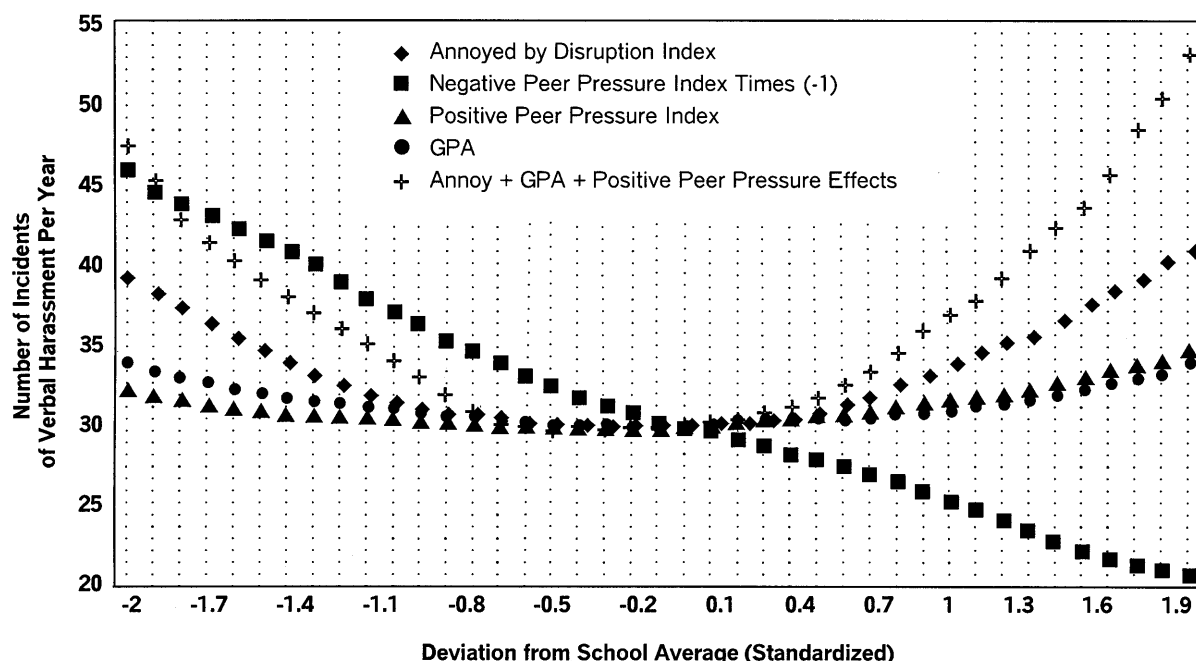
Peer Harassment

Average annual number of incidents of verbal harassment was about 23. 'Behind your back' insults (34 per year per student) were more common. Boys experienced more harassment than girls. Hispanics and Asians experienced less than Whites and African Americans. Children of well-educated parents, students in high SES schools, and students in middle schools were more likely to experience insults and teasing. However, the demographic characteristics explained only 2.1% of the variance.

When student attitude and peer pressure variables were added, variance explained by the model tripled but remained low at 6.2%. Figure 1 contains the main findings from the analysis of the attitudinal and cultural predictors of peer harassment. Attitudes and beliefs of students are arrayed on the left underneath the norms of the student's clique. School characteristics are arrayed along the bottom. School SES effect reported there is the sum of the beta coefficient on the parent's schooling and Beta coefficient for the proportion of students living with both parents. The effect reported for teachers is the sum of the Beta coefficients on the teachers are demanding and the teachers are motivating index. When we report the effect of a school average of student attitude scales the effect reported [in brackets in this case] is what would happen to the dependent variable in standard deviation units if student attitudes in the school/gender/grade went up by one student standard deviation.

Most of the hypotheses were supported. Incidence of

Figure 2
Peer Harassment's Association
with the Pro-Learning Attitudes of One's Clique



harassment was lower in schools with demanding and motivating teachers. Incidences were greater for honors students, students with many study halls, and students who

took accelerated courses in middle school. Peer harassment rates were greater for students who reported an anti-learning leading crowd in middle school and for students who

Figure 3

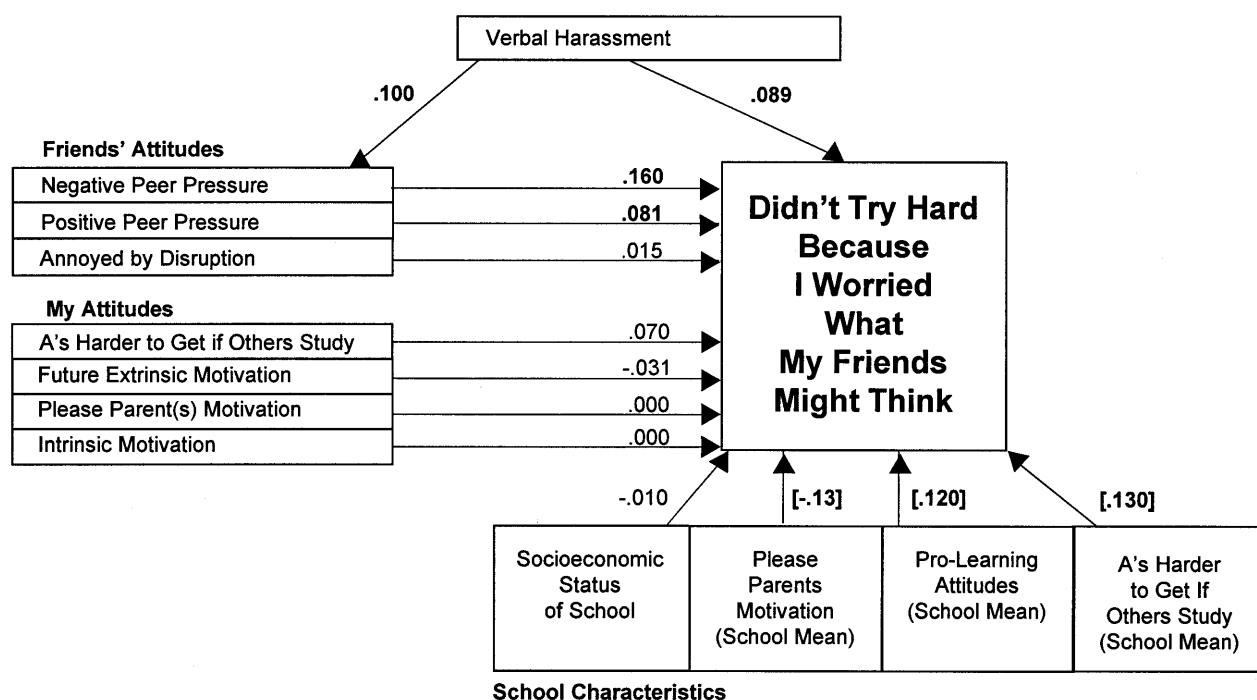
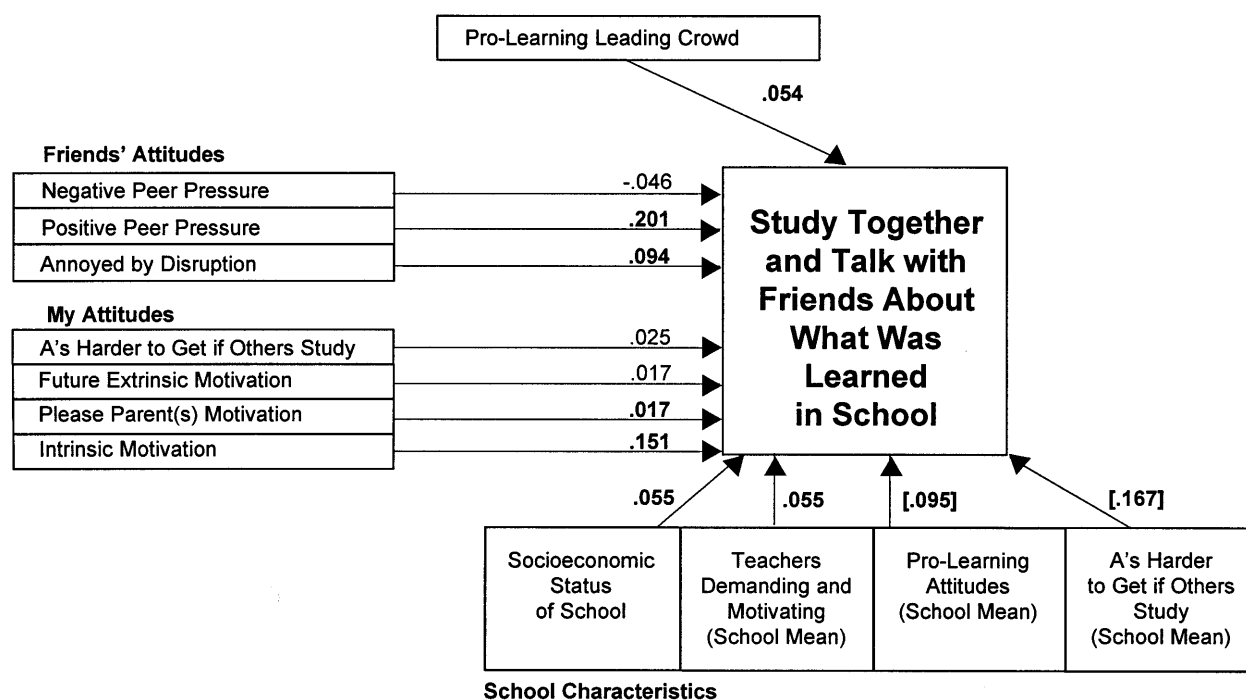


Figure 4



believed they were being graded on a curve. Students high on the negative peer pressure index [one of whose items is 'my friends make fun of those who try to do real well in school'] were also harassed much more frequently (Figure 2). Compared to the baseline of incidence of 30 per year, students who were 1.5 SDs above the mean (93rd percentile) on the negative peer pressure index were harassed 41 times a year. Those hanging out in cliques that were 1.5 SDs below the mean on this scale were harassed only 24 times a year on average.

A GPA significantly above or below the school norm led to increased harassment. When a clique's commitment to academic achievement (positive peer pressure and annoyed when others joke around scales) deviates significantly from the school norm, the members also experience more harassment. How strong is the pressure for conformity to school norms? Figure 2 presents a calculation of how much harassment increases as a student deviates from school norms on these four indices. We picked 30 insults a year of each kind as the baseline level of harassment received by students who were at the school mean on GPA, positive peer pressure and 'annoyed when others joke around.' Holding negative peer pressure constant, students who were 1.5 SDs above the mean (93rd percentile) on GPA and the commitment indices were harassed 43 times a year, a 42% increase from the baseline student. Students hanging out in cliques that were 1.5 SDs below the school mean on GPA and academic commitment were harassed about 39 times a year a 30% increase over the baseline level.

Not Trying

When directly asked whether "I didn't try as hard as I could in school because I worried about what my friends might think?", 80% said it had "never" happened. For those who said it had happened at least once, number of instances was 28 per year on average. What are the characteristics of the students who report consciously reducing effort because of a fear of how friends might react? They are more likely to be middle school students, male, to be Native American, Asian, Hispanic or African American, to live with only one parent, to have many siblings and to have parents with less schooling. Incidence of NOTRY is also lower in high-SES schools, and schools with larger numbers of African American students. However, these variables explain only 2.3% of the variance of the square root of the frequency of not trying.

What are the effects of peer pressure and norms on not trying? When peer pressure variables are added to the model, 8.8% of the variance is explained. Figure 3 presents the main findings from the analysis of the determinants of not trying hard because of a fear of a negative reaction by friends. The most powerful determinant of not trying was being in a clique where negative peer pressure was strong. Not trying because of fear about how friends would react was higher for students who were frequently harassed and for students who believed that "If others study hard, it's harder for me to get good grades." Surprisingly, students in cliques with strong positive peer pressure were also more likely to report not trying as were students in schools that had strong pro-learning norms. Schools where many of the students reported working to please and impress their parents had fewer instances of not trying. In addition, schools where many students believed they were being

graded on a curve also had significantly higher incidence of not trying.

Studying/Talking with Friends

Studying with friends and talking about what you have learned outside of class is more common for girls, for those living with two well-educated parents, for middle school students, and in high-SES communities. Studying also positively correlated with self-reported ability. These variables, however, explain only 7% of the variance of square root of the frequency of studying together variable.

When peer culture scales and the student course taking patterns and attitudes are added to the regression, variance explained rises to 22%. Studying together was more common for students in honors courses and for students who had taken accelerated courses in middle school. Figure 4 presents findings from their analysis of the effects of student motivation and peer pressure. Incidence of studying together after school is higher in schools with demanding and motivating teachers, schools with a pro-learning student culture, and schools with a pro-learning leading crowd in seventh grade. As hypothesized, studying together with friends was more common in schools where students thought they were graded on a curve.

Students with high levels of intrinsic motivation were more likely to study with friends. Students motivated to impress parents or get into college and obtain a good job were only slightly more likely to study with friends. The norms and attitudes of one's clique significantly affected studying together. Positive peer pressure and "annoyed when others joke around" had a strong positive relationship with studying together. Negative peer pressure had a negative relationship.

Classroom Engagement

Classroom engagement is lower for male students, students from single-parent families, students whose parents have limited amount of schooling, and students with many brothers and sisters. Holding school characteristics constant, African Americans, Hispanics, and Asians recorded the same level of engagement as Whites. Only Native American and mixed-ethnicity students were significantly less engaged. Schools with the highest levels of engagement had large Asian, African American, and Hispanic minorities, and schools serving the children of poorly educated parents. Findings suggest disengagement from school is not a problem confined to minority communities and low-income neighborhoods. These variables, however, explain only 7% of the variance of the engagement index.

When peer culture scales, attitudes, and self-reported ability were added to the regression, variance explained rises to 30.3%. Engagement is higher for more-able students and lower for students in basic classes. It is higher in middle school and in the early grades of high school and in schools with motivating and demanding teachers. Figure 5 presents findings from analysis of the effects of student motivation and peer pressure. Intrinsic motivation has a powerful positive effect on engagement as does future extrinsic motivation. Students motivated by a desire to impress their parents were not more engaged in class.

Peer pressure effects also were substantial. Students in cliques annoyed when others joked around in class were

more engaged. Positive peer pressure had the expected positive effect and negative peer pressure a negative effect. Engagement was lower for those who believed they were

graded on a curve and for students who were frequently verbally harassed by peers. An anti-learning leading crowd in seventh grade also was associated with lower engagement.

Figure 5

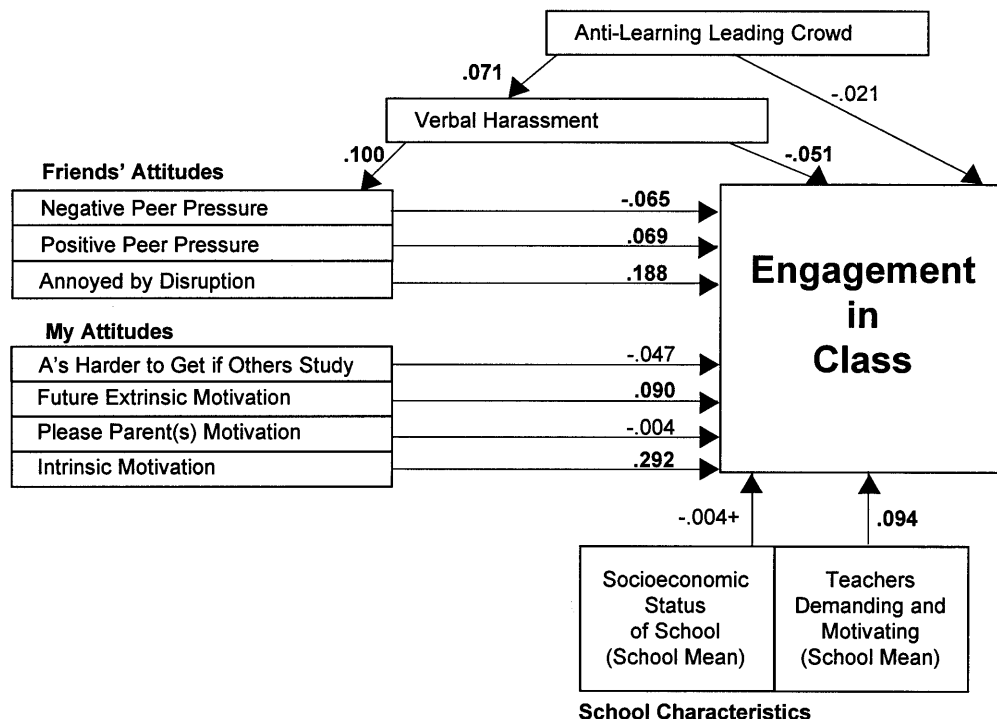
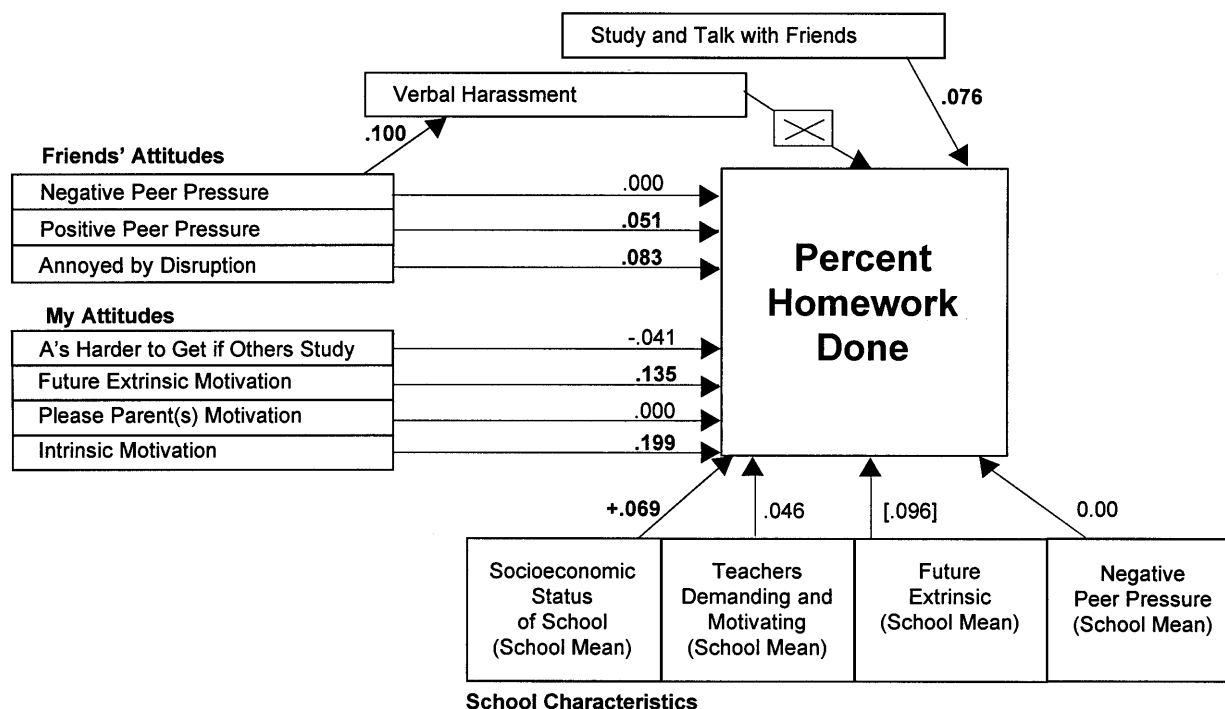


Figure 6



Completing Homework Assignments

Proportion of homework assignments completed is lower for male students, students from single-parent families, students whose parents have limited amounts of schooling, and students with many brothers and sisters. Hispanics and Native Americans completed less homework, Asians completed more. Homework completion was higher for more-able students and students in honors classes. Students with many scheduled study halls complete less homework. Completion rates were higher in schools with only a few single-parent families and in schools with interesting and demanding teachers but decline as the student progresses through high school. These demographic variables explain 8.3% of variance of homework completion.

When peer culture scales, attitudes, self-reported ability, and course taking patterns are added to the regression, variance explained rises to 23.1%. Figure 6 presents main findings from analysis of effects of student motivation and peer pressure. Intrinsic motivation has a powerful positive effect on Homework completion as does future extrinsic motivation. Students motivated by a desire to impress their parents did not complete more of their homework.

Peer pressure effects also were substantial. Students in cliques annoyed when others joked around in class and that encouraged each other's learning were more likely to complete homework. Negative peer pressure had no effect, suggesting that when a school activity is done in private, negative peer pressure attitudes of one's clique have little effect. Students who studied with friends completed a larger share of homework. Homework completion was lower for those who believed they were graded on a curve and for students who were frequently verbally harassed by peers. A pro-learning leading crowd in seventh grade was associated with higher rates of homework completion.

Grade Point Average

Parent's schooling and living with both parents both had positive effects on GPA. African Americans, Hispanics, and students with many siblings had lower GPAs. Asian American students had higher GPAs. Mean GPAs were higher in middle schools and schools with large shares of Asian American or African American students. Schools serving communities with well-educated parents did not have a tendency for better grades. These demographic variables explained 16.4% of the variance of GPAs. When self-reported ability and course taking patterns were added to the regression, variance explained rose to 35.2%. Students in accelerated classes in middle school and currently in honors classes had higher GPAs.

The final regression predicting GPA reveals how the five student behavior indicators combine to generate a teachers overall judgment of student performance. Attitudes and peer norms were assumed to influence GPA only through their effects on study behavior, so they were left out of the regression. Adding study behavior indicators to the regression increased the explained variance to 46.5%. Proportion of homework completed generated a larger effect on GPA than other effort indicators. Increasing the proportion of homework done by one standard deviation (.224) increased GPA by .23 or more than one-third of the within school standard deviation of GPA. Classroom engagement was the second most important effort-related determinant of GPA. Harassment by peers had no direct negative effect on GPA.

However, since harassment influenced engagement and homework completion it has indirect negative effects on GPA. Studying together had direct and indirect effects (through homework completion) on GPA.

IMPLICATIONS

This paper addresses two of secondary education's most serious problems – peer abuse of weaker, socially unskilled students, and a peer culture that discourages some students from trying their best academically. Two problems were documented by reviewing ethnographies of secondary schools, by interviewing students in eight New York State suburban high schools, and by analyzing data from questionnaires completed by 35,000 students at 134 schools. Based on these observations, a simple mathematical model was created of peer harassment and popularity and of the pressures for conformity created by the struggle for popularity.

The theory and data analysis suggest that, while the two problems are related, solving one will not necessarily solve the other. Nerds and Geeks represent one of many groups of outcasts in secondary schools. If suddenly it was cool to be a Geek, other groups would still be targeted for harassment, and the Nerds would likely participate in the harassment with everyone else. Nevertheless, the oppression that nerds experience sends powerful normative signals to other students to withdraw from alliances with teachers and get with the program of becoming popular with peers. "Be like us," the 'populars' say. Spend your time socializing, do not "study too hard;" value classmates for their athletic prowess and attractiveness, not their interest in history or accomplishments in science.

What do students so dislike about the students they outcast as nerds and geeks? They tell us it's the nerds' fault. They do not socialize much, "say stupid things," have geeky interests, wear unstylish clothes, are competitive about grades, talk too much in class, and lack self-confidence. These indeed are the stereotypes. However, a chicken and egg problem exists. Students identify nerds in the first weeks of middle school. Once singled out, they are subjected to harassment intended to wear down their self-esteem. Is it any wonder they lack self-esteem, leave school at 3 pm, and hang out with other geeks? Perhaps they started out being a little different then the harassment and ostracism turned them into the stereotypical nerds.

Changing the School Culture. Requiring adolescents to attend an institution where they are regularly bullied by classmates is unjust. While some parents respond by moving to another town or enrolling their child in private school, most cannot afford that option. In time, some parent may successfully sue a school district over the issue.

Harassing the students also poisons the pro-learning environment educators attempt to establish. To many students, nerds exemplify the "I trust my teacher to help me learn" attitude prevalent in elementary school. The dominant middle school crowd is telling them that trusting teachers is baby stuff. It's 'us' versus 'them.'

How can schools and teachers meet this challenge? Schools must vigorously defend the position that school is first and foremost about learning, and students are expected to work hard. EEA schools with the most-demanding teachers reported significantly lower levels of peer harassment; students studied together more frequently, were more

engaged in class, and completed homework more regularly. Schools high on the teachers are motivating index also recorded lower levels of harassment and higher levels of engagement and homework completion. The first best solution is for teachers to take over normative leadership of the school and make working hard the norm, as at KIPP Academy middle schools:

The cool kids in our school are kids who work hard, because we as adults have made sure that to be "in" you have to work hard. We have an extensive system of rewards and consequences that every teacher in every grade administers the exact same way. The consistency from classroom to classroom and across grade levels is the key, and it has helped us to establish that culture of hard work. We are all working together and have been successful because, to be frank, we haven't allowed kids, who in the past may have gotten away with not doing any work or who may have put other kids down for being nerdy or too studious, the opportunities to become "cool" or "in." Our discipline is firm; if you don't work hard you don't get to sit with your friends at lunch, go on field trips, participate in gym class, attend special events, etc., and we, the adults, are all on the same page with this. It's hard to set the norms when you are not the one participating. On the flip side, if you do work hard, then you will be rewarded in fun ways—pizza parties, skating trips, things like that. So, to have fun and fit in, kids must adapt, they must work hard. You're probably saying to yourself that this doesn't sound like your traditional middle school and why would any kid want to put in such hard work. But the kids love it here, because they are discovering that great things happen to people who work hard. And they want to be included. (Dean of Students at a KIPP Academy).

KIPP academies are non-selective choice schools that run from 8 am to 5 pm during the 180-day school year, schedule compulsory Saturday enrichment programs three times a month, and convene a three-week summer school. Students commute from all over the city. During the summer prior to first-time entry to the school, new students spend a couple of weeks in skill-building exercises, learning the KIPP culture, and bonding with future classmates and teachers. The goal is to develop the skills and knowledge necessary to gain admission to and succeed in a private or charter high school. If they achieve at the required level, they will all make it into good high schools.

However, when students and parents are not choosing the middle school, as in regular public schools, establishing a strong adult-dominated, academically focused student culture is more difficult. For certain types of achievement – athletic, funny, friendly, outgoing, popular, and attractive – more will always be better in the eyes of peers. However, when it comes to academics, peer pressure sets a norm – an optimal level of academic effort – that seeks to prevent many students from achieving all they are capable of academically. How do policy makers get serious engagement with learning to be normative among students? Niebuhr's dictum provides us with a number of avenues.

Leading crowds, and other crowds as well, can be counted on to promote norms that reflect their own interests. If the leading crowd is taking learning seriously, peer

norms about the optimal level of academic effort will shift up and the whole school will be pulled to a higher level. Thus, all of the instruments for persuading individuals to take on academic challenges and study harder – hiring competent and demanding teachers, state or departmental end-of-course exams, minimum competency exam graduation requirements, higher college admissions standards, increases in payoffs to schooling and learning, etc.– will have the same effects on peer norms that they have on the incentives faced by individuals.

An anti-learning peer culture is likely to develop if students perceive academic classrooms to be zero-sum games that pick winners and losers but cannot make everyone better off. To avoid this, the academic enterprise needs to be and needs to be perceived to be a positive sum game in which everyone can succeed. Teachers should not grade on a curve. Grades should be based on student effort (completing homework assignments), good discipline (not disrupting the learning of others), and absolute achievement (quiz and test results). Schools should not publish or call attention to class rank. Course content assessed externally by state department of education standards or advanced placement program also is desirable.

Set College Completion as a Common Goal. Almost all middle school students aspire to attend college – even those with poor basic skills.²² Middle schools should encourage this universal aspiration by taking students on trips to local colleges, briefing parents on financial aid options, and inviting former students to talk about the enjoyable aspects of college life and the importance of studying in secondary school. All students should be presumed to have college as a goal, including children from disadvantaged families. Many students do not realize the academic foundation developed in high school is critical to success in college. Once this mistaken belief is corrected, students will be more motivated to take demanding courses and study hard.

Teachers should make a special effort to persuade leaders of influential student crowds to set particularly demanding personal goals (eg, attending the state's top public university or a competitive private college). If the leadership and core members of the leading crowd are trying to get into competitive colleges, they will need to take honors classes and work hard in them. This will tend to make studying and contributing in class normative and will encourage other students to raise their aspirations and commitment to academics.

Encourage Academic Competition Among Schools. Band, choir, theater, cheerleading, and athletic programs receive enthusiastic community support because the organizations represent the school to neighboring communities, and student achievement in these arenas is visible to the community and student body. Academic extracurricular activities need to harness the energy and school spirit that inter-school rivalry and public performance generate. Individual states and foundations should establish inter-scholastic team competitions in academic subjects and for activities like debate, constructing robots, and the stock market game.

As many students as possible should participate, and all students who practice regularly should be given a valued role. This goal can be accomplished by arranging separate competitions for each grade, increasing the size of teams, and allowing schools to field larger teams or more than one

team. Academic teams should be celebrated in pep rallies, awards ceremonies, homecoming parades, trophy displays, and local newspapers with the school's sport teams. A sixth-grade team should begin training the first week of middle school. Starting early encourages the creation of large academically oriented friendship networks to give those groups a positive identity and accomplish this while the social order is still fluid.

Promote Normative Pluralism as Preferable to Normative Hegemony by a Leading Crowd. In some schools, a tight knit group of 'populars' wielded normative hegemony over students in their grade. This centralization of normative hegemony in a student group that is typically dominated by athletes, cheerleaders, and students with a fun ideology undermines teacher efforts to develop a pro-learning culture. Students who devote time to academic learning not sports and socializing are viewed as anti-social "rate busters" by the leading crowd and are often harassed and ostracized. A leading crowd that holds normative sway over the entire student body and has the power to marginalize students who study 'too hard' will be able to set a lower target L^N , pulling down effort levels of all students.

If, by contrast, a school has several leading crowds and those excluded from the leading crowds have formed groups of their own, leading crowds are less able to impose their norms on everyone else. In this pluralistic normative environment students who like science or who aspire to get into competitive colleges can find a group of like minded friends and insulate themselves to some degree from peer pressures against studiousness. Target learning levels, L^N , will be set by each crowd, but the average of these levels will be higher than when one leading crowd sets norms for everyone. Where it is not feasible to establish a school wide, pro-learning normative environment, as the KIPP Academies have done, a pluralistic student culture is the next best outcome.

Institute No Pass-No Play. Eighty-five percent of high schools have a minimum GPA requirement for interscholastic sports participation. A clean disciplinary record – no drugs, alcohol, or fights – also is typically required. Such policies have both practical and symbolic effects. Academic support is offered to athletes struggling academically. Some athletes are induced to study harder. Others either avoid parties where drugs and alcohol will be consumed or attend without imbibing. Since athletes form the nucleus of the popular crowds of most schools, their behavior influences the behavior of everyone else.

Another effect of these policies is on the makeup of the team. Students who are unable or unwilling to keep their average above the required minimum are either benched or cut from the team. The composition of the popular crowds changes and, as a result, norms promoted by the leading crowds become more favorable to academic learning. Our final suggestion for school administrators, therefore, is to reinvestigate their no-pass, no-play policy and extend it to

cheerleading and possibly to other high prestige extracurricular activities where students represent the school to surrounding communities. ■

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The Importance of Bonding to School for Healthy Development: Findings from the Social Development Research Group

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This paper summarizes investigations of school connectedness completed by the Social Development Research Group in two longitudinal studies, the Seattle Social Development Project^{1,2} and Raising Healthy Children.^{3,4} The theoretical importance of school connectedness, empirical support for the theoretical propositions of the impact of school connectedness on a variety of problem and positive behaviors, and the impact of interventions to improve school connectedness as a mechanism to improve outcomes for children and adolescents are described. This paper uses a definition of school connectedness and school bonding, derived from control theory⁵ and revised by investigations of the concept. The term used for school connectedness, school bonding, consists of two primary and interdependent components: 1) attachment, characterized by close affective relationships with those at school; and 2) commitment, characterized by an investment in school and doing well in school.

At least three child and adolescent development theories provide a central role for bonding: attachment theory, control theory, and the social development model. Attachment theory describes a process through which interactions between parents and infant establish internal working models for how a child forms social connections with others.⁶⁻¹⁰ Interactions between a child and caregivers build the foundation for bonding, a key to developing the capacity for motivated behavior. Attachment to parents appears to have a positive effect in childhood,^{11,12} adolescence,¹³ and its effects last into adulthood.¹⁴ Other investigators of attachment theory broadened the theoretical purview of bonding to include attachment with adults other than parents,¹⁵ and have found that attachment to adults other than a child's parents has positive effects on a child's resilience to adversity.^{13,16} Bonding to school represents an important area where bonding to positive adults can occur, and has shown to increase positive developmental experiences,¹⁷ decrease negative developmental experiences,¹³ and buffer the effects of risk.¹⁸ Thus, school bonding appears to promote healthy development and to prevent problem behaviors.

Another stream of theoretical work is provided by control theory of deviant behavior.⁵ As conceived by Hirschi,⁵ bonding within a socialization unit like school or family consists of four elements: 1) involvement in the unit, 2) attachment or affective relationships, 3) investment or commitment to the unit, and 4) belief in the values of the unit. Once strongly established, the social bond exerts an informal control on behavior, inhibiting deviant behavior in particular.

The Social Development Model,¹⁹⁻²² developed by the authors, also suggests a key role for bonding. In contrast to control theory, the Social Development Model employs a narrower concept of bonding as composed of attachment and commitment to a socializing unit. Involvement is seen as part of a socialization process that leads to bonding, while beliefs in the social unit's values are seen as a consequence of bonding and as a mediator of the effect of bonding on behavioral outcomes. The Social Development Model²⁰ integrates perspectives from social control theory,⁵ social learning theory,²³ and differential association theory.²⁴⁻²⁶ The model hypothesizes that children must learn patterns of behavior, whether prosocial or antisocial, from their social environment. Children are socialized through four processes: 1) perceived opportunities for involvement in activities and interactions with others; 2) actual involvement; 3) skill for involvement and interaction, and 4) perceived rewards from involvement and interaction. When socializing processes are consistent, a social bond of attachment and commitment develops between the individual and the people and activities of the socializing unit. Once strongly established, the social bond inhibits behaviors inconsistent with the beliefs held and behaviors practiced by the socialization unit through establishment of an individual's stake in conforming to its norms, values, and behaviors. It is hypothesized that the behavior of the individual will be prosocial or antisocial depending on the predominant behaviors, norms, and values held by those individuals or institutions to which/whom the individual is bonded. Important socializing units to which children bond are the family, school, peers, and community. School bonding plays a central role as one of the important prosocial socialization domains that can inhibit antisocial behavior and promote positive development in childhood and adolescence.

Empirical support for an effect of school bonding on positive and problem behavior has been found in several studies in the theoretical traditions discussed as well as in studies aimed at identifying risk and protective factors for problem behavior.^{5,13,16,18,27-29} Rather than reviewing such findings, this paper presents results from a series of longitudinal studies of the importance of school bonding completed by the Social Development Research Group in the last two decades. These investigations are linked by the Social Development Model, which is used to explain the etiology of positive and problem behavior and to design interventions to influence developmental processes.

The two longitudinal projects, the Seattle Social Development Project (SSDP) and Raising Healthy Children (RHC), from which these studies are drawn include interventions informed by the Social Development Model.^{20,22} Both studies include interventions that seek to reduce risk factors and increase protective factors for adolescent health and behavior problems. The programs used a developmentally adjusted, multiple-component strategy consisting of classroom instruction and management, parent intervention,

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and child skill development. The interventions were designed to affect the three primary socialization agents during children's elementary school years: teachers, parents, and peers. Specific intervention components of the SSDP and RHC projects and outcomes from each intervention are summarized in Table 1 and described later.

STUDY OVERVIEWS

Seattle Social Development Project

The Seattle Social Development Project (SSDP)^{30,31} began in September 1981, in eight Seattle public elementary schools located in high-risk neighborhoods. The intervention was provided to first-grade students, their parents, and teachers in experimental schools. In 1985, the panel

Table 1
Seattle Social Development Project and Raising Healthy Children Intervention Components

SSDP Grades 1-6	RHC Grades 1-3	
TEACHER TRAINING		
■	■	Proactive classroom management.
■	■	Establish consistent classroom expectations and routines at the beginning of the year.
■	■	Give clear, explicit instructions for behavior.
■	■	Recognize and reward desirable student behavior and efforts to comply.
■	■	Use methods that keep minor classroom disruptions from interrupting instruction.
■	■	Interactive teaching to motivate learners.
■	■	Assess and activate foundation knowledge before teaching.
■	■	Teach to explicit learning objectives.
■	■	Model skills to be learned.
■	■	Frequently monitor student comprehension as material is presented.
■	■	Re-teach material when necessary.
■	■	Cooperative learning.
■	■	Involve small teams of students of different ability levels and backgrounds as learning partners.
■	■	Provide recognition to teams for academic improvement of individual members over past performance.
	■	Effective reading instruction.
	■	Balanced reading (guided reading, shared reading, reading aloud, and reading alone).
	■	Direct instruction in teaching word recognition and phonetic skills.
■	■	Teacher coaching.
	■	Teachers peering in on peers.
CHILD SOCIAL AND EMOTIONAL SKILL DEVELOPMENT		
■	■	Interpersonal problem-solving skills.
■	■	Communication.
■	■	Decision making/Problem solving.
■	■	Negotiation.
■	■	Conflict resolution.
	■	Listening.
	■	Compliments.
	■	Sharing.
	■	Recognizing feelings.
	■	Tattling vs. reporting.
	■	Manners.
	■	Refusal skills.
■		Recognize social influences to engage in problem behaviors.
■		Identify consequences of problem behaviors.
■		Generate and suggest alternatives.
■		Invite peers to join in alternatives.
	■	Summer camp for social skills and reading.

was expanded to include all fifth-grade students in 18 Seattle elementary schools adding two intervention conditions (a late fifth- and sixth-grade-only intervention, and a parent-training-only intervention) and adding more control children to the study. From the population of 1,053 students entering grade five in participating schools in fall 1985, 808 students (76.7% of the population) consented to participate in the longitudinal study and constitute the SSDP sample. This quasi-experimental study included four conditions: 1) the full intervention group (n = 156) received the intervention package from grades one through six; 2) the late intervention group (n = 267) received the intervention in grades five and six only; 3) the parent-training-only condition (n = 141) received only the parent training package in grades five and six; and 4) the control group (n = 220) received no special intervention. Twenty-four subjects changed conditions and are not considered in any of the four conditions but are part of the 808. The parent-training-only group is included in the etiological analyses only. Students in the full and late conditions participated in the same interventions during the fifth and sixth grades. During this study the Seattle School District used mandatory busing to achieve racial balance in schools. Thus, all schools in the study served a heterogeneous population of students drawn from at least two different neighborhoods of the city. This practice reduced the risk that intervention outcomes reflected contextual or neighborhood differences in populations attending different schools.

Sample Characteristics

Of the 808 youth, 49% (n = 396) were female; 46% (n = 372) were European-American, 24% (n = 195) African American, 21% (n = 170) Asian American, and 9% (n = 71)

Native American or other ethnic group. More than 52% were from families in poverty as evidenced by participation in the National School Lunch/School Breakfast Program between the ages of 10 and 12.

Data

Teachers and parents (predominately mothers) were interviewed each year from grades five to 10. Youth participants were interviewed annually in the spring of each school year until those normally progressing were in the 10th grade (average age 16). They were interviewed again in the spring of their senior year in high school when most were age 18, and every three years subsequently at ages 21, 24, and 27. In grades one through six, questionnaires were group administered in project classrooms. Participants who left project schools were interviewed individually. All students were interviewed in person starting in 1988 at age 13 (grade seven for those normally progressing). Respondents were tracked and interviewed wherever they moved.

In the 2002 assessment at age 27, 743 (94% of 792 still-living participants) panel members were interviewed. Retention rates for the sample have remained above 90% since 1989, when participants were 14 years old. Approximately 91% of the sample was present for at least seven of 10 data assessment waves. Nonparticipation at each assessment wave was not related to gender, ethnicity, lifetime use of tobacco or alcohol, or participation in delinquency by age 10.

Intervention Description

Interventions were selected or developed to enhance the conditions hypothesized by the Social Development Model

Table 1 (continued from previous page)
Seattle Social Development Project and Raising Healthy Children Intervention Components

SSDP Grades 1-6	RHC Grades 1-3	
PARENT TRAINING		
■	■	Behavior management skills.
■	■	Observe and pinpoint desirable and undesirable child behaviors.
■	■	Teach expectations for behaviors.
■	■	Provide consistent positive reinforcement for desired behavior.
■	■	Provide consistent and moderate consequences for undesired behaviors.
■	■	Academic support skills.
■	■	Initiate conversation with teachers about children's learning.
■	■	Help children develop reading and math skills.
■	■	Create a home environment supportive of learning.
■	■	Skills to reduce risks for drug use.
■	■	Establish a family policy on drug use.
■	■	Practice refusal skills with children.
■	■	Use self-control skills to reduce family conflict.
■	■	Create new opportunities in the family for children to contribute and learn.
	■	School home coordinator to coordinate intervention - school-wide intervention components.

to enhance bonding to school, family, and positive peer groups.

Classroom Instruction and Management. As the panel of first-grade students moved through the elementary grades, teachers of students in the intervention condition received five days of training in a package of instructional and classroom management methods to enhance processes of social development that would lead to enhanced school performance and bonding. Teacher interventions included three major components: proactive classroom management,³² interactive teaching,^{2,33} and cooperative learning.^{34,35} With proactive classroom management, teachers established classroom routines at the beginning of the year to create a consistent pattern of expectations. Prior to each year, teachers were taught how to give clear expectations and explicit instructions about attendance, classroom procedures, and student behavior, and to recognize and reward attempts to comply. Teachers also were taught methods to maintain classroom order that minimize interruptions to instruction and learning. Teachers were taught to provide frequent, specific, and contingent encouragement and praise for student effort and progress that identified the student-specific behavior being rewarded. Components of interactive teaching used in this project included assessment, mental set, objectives, input, modeling, checking for understanding, and remediation.³³ These techniques were designed to motivate students to learn, provide clear input and modeling of the lesson, and provide opportunities for teachers to assess whether substantial proportions of the class understood the lesson.

Cooperative learning involves teachers' use of small groups of students as learning partners. Students from differing abilities and backgrounds are provided the opportunity to work together in teams to master curriculum materials and receive team recognition for their group's academic performance. Cooperative learning techniques used in this intervention included Student Teams Achievement Divisions and Teams-Games-Tournaments developed by Slavin.^{34,35}

Teacher training modules were expected to directly increase teachers' skills and, as a result, increase students' opportunities and involvement in the classroom, perceived rewards for involvement, social and cognitive skills, and bonding to school. Further, teachers' skill improvement was expected to decrease students' risk factors for early and persistent antisocial behavior and academic failure.

Child Skill Development. First-grade teachers of the full treatment group also received instruction in using a cognitive and social skills training curriculum titled Interpersonal Cognitive Problem Solving.³⁶⁻³⁸ The curriculum teaches skills to children to think through and use alternative solutions to problems with peers. The curriculum develops children's skills for involvement in cooperative learning groups and other social activities without resorting to aggressive or other problem behaviors. In addition, when students were in grade six, they received four hours of training from project staff in skills to recognize and resist social influences to engage in problem behaviors, and to generate and suggest positive alternatives in order to stay out of trouble while keeping friends.³⁹

Parent Training. Parent training classes appropriate to the developmental level of the children were offered on a voluntary basis to parents or adult caretakers. Parents in the

full intervention condition were offered training in child behavior management skills when their children were in the first and second grades through a seven-session curriculum, Catch 'Em Being Good,⁴⁰ grounded in the work of Patterson.⁴¹ In spring of second grade and again in third grade, parents of children in the full intervention also were offered a four-session curriculum, How to Help Your Child Succeed in School,⁴² to strengthen their skills for supporting their children's academic development.

When their children were in grades five and six, parents of children in both the full and the late intervention conditions were offered the five-session Preparing for the Drug (Free) Years®⁴³ curriculum to strengthen their skills to reduce their children's risks for drug use and enhance family bonding into adolescence. The program seeks to reduce drug abuse and related behavior problems by helping parents create opportunities for children to be involved in meaningful ways with their families, strengthen family bonds, set clear expectations for behavior, teach their children skills to resist peer pressure, reduce family conflict and control emotions, and practice consistent family management.

It was expected that the content from the parenting curricula would directly decrease the risk factors of family conflict and poor family management skills. It was expected that protective factors would be enhanced, including clarification of family expectations, prosocial parent-child involvement, perceived rewards for involvement with prosocial family and teachers, social and academic skills, and family bonding. These changes in turn were expected to decrease the perceived rewards for aggressive and other problem behavior.

Etiological Analyses

Studies using the SSDP sample have shown that school bonding during the middle and high school years, measured from age 10 to 18, was significantly and negatively associated with substance use, delinquency, gang membership, violence, academic problems, and sexual activity in adolescence and young adulthood (up to age 21). With few exceptions, the strength of the relationship did not differ by gender or ethnicity.

Substance Use. School bonding was related to lower rates of drinking and smoking initiation. Bonding to school in fifth grade was associated with postponement of drinking initiation, which, in turn, reduced the likelihood of alcohol misuse in 12th grade.⁴⁴ School bonding also affected initiation of smoking. Students more committed and attached to school in fifth and sixth grade were less likely to initiate smoking by seventh grade. They also were more likely to never smoke during adolescence than to begin smoking in adolescence.⁴⁵ School bonding also was related to levels of substance use. Both school bonding in 12th grade and an increase in bonding between grades seven and 12 correlated negatively with lifetime alcohol, cigarette, marijuana, and other drug use by 12th grade.⁴⁶ School bonding related to alcohol abuse and dependence at age 21. School bonding in grades five, eight, and 10 lowered the odds of alcohol abuse and dependence at age 21 to almost one-half the odds of those less bonded to school at these ages.²⁷ These results also were found among high-risk populations. Among aggressive boys, O'Donnell et al.,⁴⁷ using a grade six and seven measure that combined school bonding and achieve-

ment, found that school bonding/achievement associated negatively with substance use in eighth grade.

Delinquency and Crime. Students bonded to school by fifth and sixth grades were less likely to become minor or serious offenders at seventh grade (versus not offending).⁴⁸ Girls (but not boys) who were more committed and attached to school in grade seven were less likely to initiate delinquent behavior between seventh and ninth grade. Both boys and girls with greater school commitment and attachment in seventh grade were more likely to desist from delinquent behavior between grade seven and nine than to continue their offending.⁴⁹

A negative association between school bonding and delinquency also was found for children with elevated risk factors. Among aggressive boys, O'Donnell et al⁴⁷ found a negative association between school bonding/achievement in sixth and seventh grades and serious delinquent behavior in eighth grade. Among children from low-income families, school commitment and attachment in fifth and sixth grade reduced the likelihood of becoming offenders between grades seven and 12.⁵⁰

Gang Membership. Students with lower school attachment and commitment in fifth and sixth grade were about two times as likely to join a gang in adolescence between grades seven and 12 as compared to students with greater attachment and commitment to school.⁵¹

Violence. Students bonded to school in fifth grade were less likely to engage in any violent behavior between grade seven and age 21 than students less bonded to school.⁵² Another study showed that the odds of being violent at age 18 was reduced (OR = .37) for those adolescents bonded to school in ninth grade.⁵³ Similarly, students in eighth and 10th grade with lower school commitment had almost twice the odds of being violent in 12th grade.^{54,55}

Academic Problems. School bonding in grade eight was associated with a greater likelihood of academic achievement in the same year, which in turn decreased the chance of dropping out of school before the end of 10th grade.⁵⁶ School attachment and commitment in eighth grade also was related to better academic and social skills in the same year.⁵⁷ Hawkins and colleagues⁴⁶ found that school bonding was associated with a range of academic outcomes. An increase in school bonding between grades seven and 12 correlated positively with self-reported and official grade point average (GPA), and correlated negatively with school misbehavior in 12th grade. School bonding in the senior year of high school correlated positively with senior year self-reported and official GPA, and associated negatively with grade repetition, school dropout, school misbehavior, having been disciplined at school, and suspension/expulsion.

Summary of Etiological Analyses. This analysis confirmed the importance of school bonding to child development. Various techniques were used to examine the relationship between school bonding and positive and problem behavior, and these relationships were found during childhood and adolescence. School bonding in elementary school was related to initiation of drinking, smoking, and alcohol abuse and dependence at age 21. It also related to lower likelihood of becoming serious offenders in middle school and joining a gang in adolescence. Elementary and middle school bonding had a negative effect on violence in middle school through age 21. It also reduced the chance of

school misbehavior, grade repetition, and dropout. School bonding also affected positive development. School bonding was associated with increases in academic achievement and social skills. School bonding effects extended to high-risk groups including aggressive boys, children with parents who modeled problem behaviors, and children from low-income families. School bonding in middle school was related to desistance of serious delinquent behavior. The relationship was maintained through age 21, with students reporting greater school bonding in seventh grade more likely to desist rather than escalate the seriousness of their offending. School bonding in middle school and the pattern of bonding throughout middle and high school also related to reduced levels of substance use in 12th grade. Thus, school bonding during elementary and middle school was consistently related negatively to problem behaviors in this longitudinal study.

Several competing factors that might explain the relationship between school bonding and problem behaviors were controlled in the analyses, lending credibility to the potential causal effect of school bonding. However, while nonexperimental, longitudinal studies establish time order, they do not establish cause. A stronger criterion for establishing the causal effect of school bonding comes from intervention studies aimed at changing the levels of school bonding and examining the effects on positive and problem behavior. Statistically significant results of the prevention experiment embedded within SSDP are described below.

Intervention Outcomes

Results at the End of Grade Two. At the end of second grade, teacher reports using the Child Behavior Checklist⁵⁸ were used to assess effects of the intervention at the end of two years. Effects on school bonding and commitment were not examined at this time. Two significant intervention effects were found for males with respect to aggression and antisocial behavior. Teachers reported that European American boys in the experimental group were less aggressive and demonstrated less externalizing antisocial behavior than boys in the control group. African American boys showed no significant effects. One intervention effect was found for females. Teachers reported girls in the experimental group were less self-destructive than control girls. When ethnic groups were examined separately, this pattern of results held for European American girls, but not African American girls.⁵⁹

Results Entering Grade Five. At the beginning of grade five, the intervention had positive effects on school bonding, including attachment and commitment, controlling for race, socioeconomic status, and residential mobility. Students in the intervention condition also reported significantly lower rates of delinquency and alcohol initiation.⁶⁰

Results at the End of Grade Six. Confirming the expected impact on social development constructs, stronger teacher implementation of targeted teaching practices related to student reports of more classroom opportunities for involvement, more actual involvement in classroom activities, more perceived recognition for classroom participation, and stronger bonding to school. Further, improvement in achievement test scores was related to assignment to intervention classrooms, compared to control classrooms.⁶¹

A second study examined effects of the SSDP interven-

tion at the end of grade six on boys and girls with elevated risk due to low family income. Intervention group boys from low-income families were more likely to report higher levels of social skills, higher levels of classroom participation, better school work, greater attachment and commitment to school, and better achievement test scores and grades when compared to controls. Intervention girls from low-income families reported more classroom and team-learning opportunities, more classroom participation, and more bonding and commitment to school.⁴⁷

Long-Term Results. Several studies have evaluated the long-term effects of the SSDP intervention on bonding to school, academic achievement, and problem behaviors such as school dropout, early sexual activity, drug and alcohol use, delinquency, and violence.

Hawkins et al⁴⁶ examined long-term effects of SSDP on the growth in school bonding over time, comparing the full intervention, the late intervention, and the control groups. School bonding was assessed at grades seven, eight, nine, 10, and 12. Although results of earlier studies demonstrated positive intervention effects on school bonding during elementary school, at middle school entry, when intervention students were exposed to regular classroom teachers not trained in the SSDP teaching practices, no significant differences between the three groups were found in mean levels of bonding. However, when growth in school bonding after grade seven was examined, results indicated that, although school bonding declined for all three groups, it declined the least for the full intervention group and most for the control group. By 10th grade, and continuing through 12th grade, level of bonding to school in the full intervention group was significantly higher than in the control group. This result remained statistically significant after controlling for gender, ethnicity, poverty, and earlier academic achievement. In contrast, the late intervention group did not statistically differ from the control group. Thus, despite a narrowing of the difference between groups to nonsignificance at middle school entry, perhaps due to students reacting to an abrupt change in teaching practices with the onset of middle school, the trajectories of bonding to school diverged across adolescence. Thus, the impact of early intervention changes may have helped students to develop a strong interest and connectedness to school that was able to overcome the steep decline in bonding during middle and high school experienced by the control group.

Another study examined effects of the intervention on levels of school and problem behavior outcomes in 12th grade.¹ Participants in the full intervention condition reported more school commitment, school attachment, and school achievement in grade 12, as well as reduced school misbehavior in grade 12, compared to controls. In addition, the full intervention condition reported lower levels of high alcohol use, lifetime violence, and risky sexual behavior. The full intervention was effective for youth from poor families for several outcomes, with intervention effects of improved school attachment and reduced grade repetition. Low-income youth also were less likely to use high levels of alcohol and drive under the influence of alcohol. Adolescents in the late intervention condition reported less school misbehavior than controls.

Another investigation examined condition differences in sexual practices at age 21.⁶² Findings indicated participants in the full intervention condition were less likely to initiate

sexual behavior during the ages of 8-21. Females in the full intervention were less likely to become pregnant by age 21 than controls, and single African Americans in the full intervention condition were more likely to use condoms and less likely to have had an STD by age 21.

Summary

The SSDP accomplished several positive outcomes and reduced problem behaviors during the course of development. The theory behind the intervention was to change the socializing agents in order to change children's behavior. By changing the teaching practices and skills of parents and peers, the project attempted to change the socialization experiences of elementary school students. We expected that changing the opportunities, skills, and the recognition for prosocial involvement, and at the same time reducing antisocial opportunities, skills, and recognition for problem behavior, would result in children bonding to prosocial individuals and institutions and reduce the likelihood of their bonding to antisocial others. These socialization experiences were hypothesized to increase healthy and decrease unhealthy behavior.

Study results when students were in grades one to six demonstrated that the intervention increased school bonding and achievement and reduced problem behavior. During middle and high school the level of school bonding declined less for full intervention students than control students. This difference increased by 12th grade. Compared to the control group, levels of school attachment, commitment, and academic achievement were higher in senior year of high school, and school problems, violence, alcohol abuse, and risky sexual activity were reduced. At age 21, pregnancy rates were lower among females. Among single, African American females, rates of condom use were higher and rates of STDs were lower. The intervention appeared to meet its goals. Providing socializing agents the skills to enhance the social environment of elementary school students resulted in more bonding to school, which in turn led to enhanced academic achievement and reduced problem behavior.

RAISING HEALTHY CHILDREN

In fall 1992, families were recruited to participate in the Raising Healthy Children (RHC) project, an enhanced replication of the SSDP. Principals and teachers of 10 elementary schools in a suburban district consented to random assignment into the project. The 10 schools (of 23) with the lowest income families were matched on income, ethnicity, and mobility. Five schools were randomly assigned to the experimental intervention condition, and five schools were assigned to the no-intervention control condition. Families from these schools were recruited into the longitudinal study. Of the 1,239 first- and second-grade students eligible to participate, 938 (76%) were enrolled in the project. An additional 102 students, who were from the same grade levels and had transferred to the study schools, were enrolled in the fall of the subsequent year.

Sample Characteristics

The RHC sample was 47% (n = 492) female; 81% (n = 846) European American, 7% (n = 73) Asian American, 4% (n = 46) African American, 4% (n = 46) Hispanic, and 3%

(n = 29) Native American. In the first two years of the study, 29% (n = 306) were in the free or reduced-price school lunch program.

Data

Data were collected in fall 1993 and each subsequent spring. Data were collected on the consenting panel, including students who transferred out of the original project schools or moved out of the local area. The study is in its 10th year of data collection, and 91% of the sample is still active. Data has been collected from teacher, parent, and child surveys, observations of project school teachers in grades one to seven, and school records on test scores, grades, attendance, and disciplinary actions. Survey completion rates have been consistently high, between 89% and 100%.

Intervention Description

The Raising Healthy Children (RHC) project sought to replicate and extend the results of SSDP. Several enhancements were made to the SSDP intervention. First, schools rather than classrooms were the unit of assignment and intervention. Researchers expected that a schoolwide approach to the teaching, parenting, and the skills training strategies for students would strengthen prevention program implementation. Teacher implementation of instruction and classroom management practices would be strengthened by increasing opportunities for teachers to learn from other teachers and from implementing the program over multiple years prior to receiving panel students in their classrooms. Parent implementation of family management and academic support would be strengthened through schoolwide recruitment to parenting workshops. Peer skill training intervention would be enhanced by teaching all teachers in an elementary school a scope and sequence of social and emotional skills appropriate to each grade level. This would enhance school support by all school staff who would be able to reinforce the skills in a variety of settings, such as classrooms, playgrounds, and lunchrooms.

The second difference from SSDP was that intervention implementation for each of the five experimental schools was coordinated by a project staff person, referred to as a school-home coordinator (SHC). SHCs were former classroom teachers or specialists with experience providing services to parents and families. SHCs were responsible for supporting school-based intervention strategies and for implementing family- and student-focused interventions. Finally, RHC provided specific, structured peer activities, such as summer camps, to enhance both cognitive and social skills. Intervention enhancements are further described elsewhere.³ Table 1 provides a summary of intervention components of RHC.

The RHC intervention focused on the same three domains as SSDP. The school intervention strategy provided a series of instructional improvement and classroom management workshops and classroom coaching for teachers. Like SSDP, RHC workshops focused on proactive classroom management, cooperative learning, and instructional strategies in the classroom. RHC teacher workshops also included material on strategies for effective reading instruction. Teachers were trained in a two-year period, attending three workshop days per year.

The family intervention strategy offered parenting work-

shops and home-based services. Like SSDP, two sets of parenting curricula were offered the first two years of the study. Proactive family management was augmented by the Catch Em' Being Good⁴⁰ curricula offered in SSDP, and *How to Help Your Child Succeed in School* was updated from earlier SSDP materials.

Raising Healthy Children also provided a peer intervention strategy for children to learn and practice social and emotional skills in the classroom and in social situations. As in SSDP, teachers were trained in strategies to teach and reinforce social skills in the classroom.

Similarly to SSDP, these combined strategies aimed to reduce the risk factors of poor family management, family conflict, early antisocial behavior, academic failure, and friends involved in problem behavior; and to enhance the protective factors of clarification of family and classroom expectations, prosocial parent-child and teacher-child opportunities and involvement, perceived recognition for involvement with prosocial family and teachers, social and academic skills, and family bonding. These changes were expected to decrease the perceived rewards for aggressive and other problem behavior.

Etiological Analyses

The Raising Healthy Children Project has completed two investigations of the relationships of school bonding with problem behavior and academic achievement. In the first investigation, school bonding, measured by both parent and teacher reports of child's commitment and attachment to school in grades three and four, was associated negatively with problem behavior, measured by teacher, parent, and child report of aggression, school problems, substance use, and delinquency in grades five and six. School bonding had a stronger protective effect for children whose parents reported involvement in antisocial behavior such as illicit drug use, heavy alcohol use, or domestic violence than for children whose parents were not involved in these behaviors.⁶³ In the second investigation, school bonding was examined as a predictor of academic achievement. A measure of school bonding based on parent, teacher, and child report of attachment and commitment to school when children were in third grade had a positive association with academic test scores in seventh grade after accounting for fourth-grade test scores, family background characteristics, child psychological and behavioral characteristics, and other environmental influences.⁶⁴

Intervention Outcomes

Effects at the End of Second and Third Grade.

Classroom observations were used to evaluate whether teachers in intervention schools implemented pedagogical and classroom management strategies such as promoting active involvement of students in classroom activities, providing positive reinforcement for prosocial behavior, and setting clear guidelines for appropriate behavior. During the first five years of the project, teachers in intervention schools who had project children in their classrooms used more positive teaching strategies and less negative teaching practices than teachers in control schools.⁶⁵ Data analysis from the first two years found that child exposure to positive teaching strategies was associated with higher levels of teacher reported commitment to school.⁶⁶

In addition to the impact of teacher practices on commitment to school, experimental versus control group differences in student behavior were examined over the first two years of the project. Based on teacher reports of student behavior in their classrooms, students in experimental schools had increased social and cognitive competence, commitment to school, and academic performance, and had reductions in problem behavior. In addition, parents of program students rated their children higher in terms of commitment to school and academic performance compared to control parents' ratings of their children.³

Early RHC intervention results were similar to early results from SSDP. In addition to having an effect on a similar scale of early problem behavior, the RHC intervention also increased teacher report of school commitment, social and cognitive competence, and academic performance. The findings suggest that levels of school bonding can be reliably changed and that these changes are associated with improvements in positive development as well as reductions in problem behavior.

DISCUSSION

School bonding has theoretical and empirical support as a critical element in the developmental experience of children. It is an important component of attachment, control, and social development theory. Each theory describes mechanisms through which school bonding might influence behavior. Attachment theory suggests that secure attachment allows identity development and trust in others, making it possible for a child to explore their environment, develop a capacity for adaptive responses to change, and grow into a healthy and functional adult. Control theory adds that school commitment and attachment create an informal control that reduces problem behaviors that interfere with school success. Social development theory adds that school bonding is produced by socialization processes that include opportunities for involvement; actual involvement; teaching of social, emotional, and cognitive competences so that individuals will be successful in school and other settings; and recognition for skillful performance and effort. Similar to other theories, the social development perspective suggests that once bonds to school are strongly established, they inhibit behavior inconsistent with the norms and values of the school. A contribution of social development theory is the empirically supported premise that if the norms are positive, positive behavior becomes the likely result; however, if norms are negative, negative behavior is the likely result. If a school is well organized, if teachers hold students in esteem and believe that all children can learn, and if the peer culture supports academic achievement, bonding to school is likely to produce positive outcomes for students and reduce problem behaviors.⁶⁷

Empirical support for the positive role of school bonding comes from many researchers.^{5,13,16} In this paper, work was summarized from two of our longitudinal studies that demonstrate relationships between school bonding and behavioral outcomes. These longitudinal studies have demonstrated the importance of school bonding in contributing to positive outcomes like academic performance and social competence. In addition, strong school bonding was associated with less tobacco, alcohol, and drug use; criminal involvement; gang membership; and school dropout.

Due to the importance of school bonding for healthy development, it has been a focus of interventions developed at the Social Development Research Group. Findings from the Seattle Social Development Project (SSDP) and the Raising Healthy Children (RHC) project suggest that the cumulative effect of the interventions has contributed to improvements in student attachment and commitment to school, which in turn, were associated with changes in positive and problem behavior. The SSDP and RHC interventions were designed to increase the competence of socialization units of school, family, and peer groups to enhance school bonding, and reduce the likelihood of bonding to antisocial others. Researchers expected the results to lead to an increase in positive behaviors and reduction in negative behaviors. As demonstrated by the SSDP results, it is possible to provide an intervention to teachers, parents, and peers that affects students' school bonding during the intervention and up to six years later. In addition, the SSDP intervention had a range of positive outcomes six and nine years after intervention was completed. Outcomes included higher levels of academic success, and reduced school problems, violence, alcohol abuse, and risky sexual behavior. Early SSDP results were replicated and strengthened in the RHC Project.

These longitudinal and intervention studies provide evidence of the importance of school bonding for promoting healthy development of young people. School bonding promotes academic success, reduces barriers to learning, and reduces health and safety problems. School bonding receives strong support as an important causal element in healthy youth development from both theoretical and empirical evidence.

These results make an important practical contribution for schools, which in recent years have faced mounting pressure to focus on academic success.⁶⁸ Such a focus is worthwhile and appropriate for those entrusted with producing the next generation of citizens. Often this pressure has led to a strategy focused on high-stakes testing and reform efforts, embodied by the No Child Left Behind legislation, that focus schools on what is being taught in the classroom, in some cases narrowing the content focus to academic subjects. Less attention has focused on social and emotional competence and how the content is taught. Results of these studies suggest that a focus on how children are taught and teaching children social and emotional competence are critical to achieving academic success. Children must be taught content in ways that motivate, engage, and involve them in their learning so they enjoy learning and develop a stake in achievement. Doing this requires a focus on social and emotional competence as well as cognitive competence. This paper demonstrates this directly. Increasing bonding to school, by providing students with opportunities to actively participate in their education, the social and emotional skills to participate effectively, and recognition to enhance motivation to continue to be engaged in academic pursuits, promotes academic success. In an era when curricula content is being narrowed to accentuate academic gains, a broader understanding of what constitutes positive school success is needed. These studies demonstrate that monitoring student bonding to school in addition to academic performance may be an important addition to understanding academic success.

Evidence presented in this paper also indicates that school bonding reduces problems including delinquency and violence, gang involvement, drug use, and dropout. Reducing these problems is also important in producing academic success because they are barriers to learning. In other research conducted by the Social Development Research Group, school dropout was consistently predicted by three independent factors: poverty, delinquency and drug use, and academic competence.^{56,69} In these analyses, delinquency and drug use were twice as important as poverty in predicting dropout and close to the same level of importance as academic competence in producing school dropout.

For schools to succeed, they must use the best teaching technology to improve academic competence, as well as reduce the barriers to learning represented in delinquency and drug use. Since school bonding is a strong predictor of both academic competence and these barriers, it is indeed critical to focus energies on school bonding as well as academic competence. This has implications for the school reform movement which has produced a variety of school-wide and classroom interventions. Such reform efforts are strengthened when they focus on curriculum enhancements and on creating the conditions for school bonding – increasing classroom and school opportunities for active involvement, teaching students the skills they need to succeed, and recognizing effort and accomplishment to enhance motivation to stay involved in academic activities. A focus on academic competence alone is less likely to achieve the goals of school reform, leaving no child behind. ■

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Statement of Purpose

The *Journal of School Health*, an official publication of the American School Health Association, publishes material related to health promotion in school settings. *Journal* readership includes administrators, educators, nurses, physicians, dentists, dental hygienists, psychologists, counselors, social workers, nutritionists, dietitians, and other health professionals. These individuals work cooperatively with parents and the community to achieve the common goal of providing children and adolescents with the programs, services, and environment necessary to promote health and improve learning.

Contributed manuscripts are considered for publication in the following categories: **Articles, Research Papers, Commentaries, Teaching Techniques, and Health Service Applications**. Primary consideration is given to manuscripts related to the health of children, adolescents, and employees in public and private preschools, child day care centers, kindergartens, elementary schools, middle level schools, and senior high schools. Manuscripts related to college-age young adults are considered if the topic has implications for preschool through high school health programs. Relevant international manuscripts are also considered.

Prior to submitting a manuscript, prospective authors should review the most recent "Guidelines for Authors," printed periodically in the *Journal*. Copies may also be obtained from the *Journal* office, P.O. Box 708, Kent, OH 44240, or electronically from treed@ashaweb.org.

Relationships Matter: Linking Teacher Support to Student Engagement and Achievement

Adena M. Klem, James P. Connell

An emerging consensus exists in the school reform literature about what conditions contribute to student success.¹⁻⁴ Conditions include high standards for academic learning and conduct, meaningful and engaging pedagogy and curriculum, professional learning communities among staff, and personalized learning environments. Schools providing such supports are more likely to have students who are engaged in and connected to school.

Professionals and parents readily understand the need for high standards and quality curriculum and pedagogy in school. Similarly, the concept of teachers working together as professionals to ensure student success is not an issue. But the urgency to provide a personalized learning environment for students – especially with schools struggling to provide textbooks to all students, hot meals, security, and janitorial services – is not as great in many quarters. While parents would prefer their children experience a caring school environment, does such an environment influence student academic performance? Research suggests it does. For students to take advantage of high expectations and more advanced curricula, they need support from the people with whom they interact in school.^{5,6}

Experience of Support from Teachers

First, students need to feel teachers are involved with them – that adults in school know and care about them. Students also need to feel they can make important decisions for themselves, and the work they are assigned has relevance to their present or future lives. Some researchers refer to this as autonomy support.⁷⁻⁹ Finally, while youth desire respect and the opportunity to make decisions, they also need a clear sense of structure within which to make those decisions. Young people need to know what adults expect regarding conduct, that consistent and predictable consequences result from not meeting those expectations, and that the expectations are fair.

Studies show students with caring and supportive interpersonal relationships in school report more positive academic attitudes and values, and more satisfaction with school.¹⁰⁻¹³ These students also are more engaged academically.^{7,9,12,14-16}

Engagement in School

Engaging students in their own learning has challenged educators for decades. Studies show students become more disengaged from school as they progress from elementary to middle to high school.^{14,17} By high school as many as 40% to 60% of students become chronically disengaged from school – urban, suburban, and rural – not counting those who already dropped out.^{18,19} There is general agree-

ment that engagement in learning is as important for success in school as it is elusive in the vast majority of traditional, bureaucratic school structures. As a result, researchers have studied and measured the construct of engagement in many different ways. In a review of theoretical perspectives on engagement, Marks¹⁴ (pp154-155) conceptualized engagement as “a psychological process, specifically, the attention, interest, investment, and effort students expend in the work of learning.” She also offered definitions of other researchers including: “students’ involvement with school, [a sense of belonging and an acceptance of the goals of schooling]”,^{20,21} their “psychological investment in and effort directed toward learning, understanding, or mastering the knowledge, skills, or crafts that academic work is intended to promote”²² and students’ “interest” and “emotional involvement” with school, including their “motivation to learn.”^{14,19}

Connell and colleagues also explored the causes and consequences of engagement.^{8,23-25} They defined and measured two forms of engagement: ongoing engagement, and reaction to challenge. Ongoing engagement aligns closely with other definitions of engagement and refers to student behavior, emotions, and thought processes during the school day. Behavioral engagement includes time students spent on work, intensity of concentration and effort, tendency to stay on task, and propensity to initiate action when given the opportunity. Emotional components of engagement include heightened levels of positive emotion during the completion of an activity, demonstrated by enthusiasm, optimism, curiosity, and interest. Cognitive components of engagement include students’ understanding of why they are doing what they’re doing and its importance.

Reaction to challenge, a less-frequently used component of engagement, refers to students’ coping strategies for dealing with a challenge, particularly whether they engage or withdraw when faced with perceived failure in school. Students who perceive the situation as challenging actively persist in the face of failure through the use of effort, strategic thinking, problem-solving, information-seeking, and experimentation. An optimistic attitude and attempts to plan and prevent problems from occurring in the future accompany such behaviors. Conversely, students threatened by a situation tend to react to a perceived failure by escaping the situation mentally or physically, and by avoiding or delaying the activity as long as possible when encountered in the future. Negative emotions such as anger, blame, denial, anxiety, and hopelessness accompany these behaviors.^{7,23,24,26}

Engagement and Academic Success

Regardless of the definition, research links higher levels of engagement in school with improved performance. Researchers have found student engagement a robust predictor of student achievement and behavior in school, regardless of socioeconomic status.^{7,16,20,21,27-34} Students engaged in school are more likely to earn higher grades^{35,36}

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and test scores,³⁶⁻³⁹ and have lower drop-out rates.^{40,41} In contrast, students with low levels of engagement are at risk for a variety of long-term adverse consequences, including disruptive behavior in class, absenteeism, and dropping out of school.^{19,20,42}

Examining Links Between Teacher Support, Engagement, and Academic Success

This study was guided by a reduced version of the Self-System Process Model developed by Connell⁷ (Figure 1). The motivational model explains linkages among individual's experience of the social context, their self-system processes, their patterns of action, and actual outcomes of performance. Research testing linkages in the model used complex statistical strategies such as path analyses to support hypothesized relationships between teacher support and engagement, and between engagement and achievement.^{29,40} This study tested linkages in the model, and examined two additional research questions: 1) What threshold levels on teacher support and engagement are critical to later academic success? 2) How much difference does achieving the threshold levels contribute to the likelihood of school success or difficulty?

In addition, the study examined initial data from a broader sample of students in elementary, middle, and high school in an urban school district implementing the First Things First school-reform framework.⁴³ First Things First seeks to achieve three goals: 1) improve relationships between students and adults; 2) improve teaching and learning; and 3) reallocate resources to achieve goals one and two. First Things First provides an opportunity to study interventions geared explicitly toward improving levels of teacher support and the effects on student engagement and performance.

METHOD

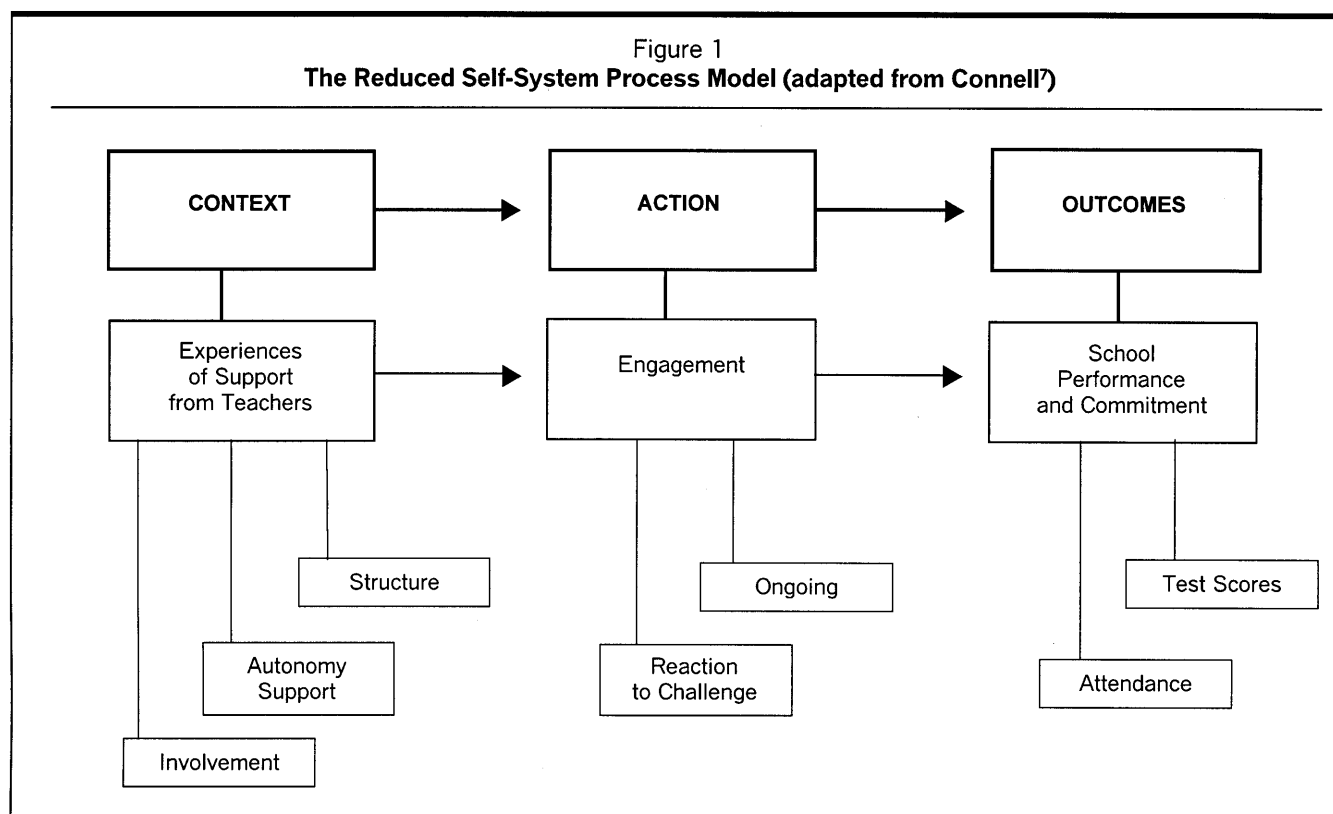
Data

Longitudinal data sets collected by the Institute for Research and Reform in Education to validate the Research Assessment Package for Schools (RAPS)⁴⁴⁻⁴⁸ were used. RAPS measures components of the self-system process model by surveying students (RAPS-S), teachers (RAPS-T), and parents (RAPS-P). School records (RAPS-R) and quality of school reform implementation (RAPS-CF) also are assessed as part of the RAPS measures. Data in this paper were derived from RAPS-R, RAPS-S, and RAPS-T. The student survey has two versions: one for elementary-level students, and one for secondary-level students. Versions were validated separately using age-appropriate youth.

Sample

Student records and survey data were obtained from studies conducted in six elementary schools within one urban school district for the elementary-level analyses, and from studies conducted in three middle schools within one urban school district for the secondary-level analyses. Data for records and surveys (student and teacher versions) were obtained for years 1990-1995. Measures of teacher support and engagement (from the perspective of teachers and students) were obtained simultaneously at the beginning of each spring semester using the RAPS-S and RAPS-T. Records data was obtained at the conclusion of the year in which surveys were administered. If students completed the survey more than once, the most recent available assessment and records data was used for these analyses. Table 1 contains general characteristics of the samples.

Figure 1
The Reduced Self-System Process Model (adapted from Connell⁷)



Measures

Academic Achievement and Behavior. The Student Performance and Commitment Index (SPCI) assessed student achievement and behavior. The Institute for Research and Reform in Education (IRRE) developed the SPCI in response to school districts' need for a simple, compelling, and scientifically credible means to track student performance and behavior across elementary, middle, and high school. After extensive analyses on a range of student outcome variables available from student records – including suspension, grades, nationally normed test scores, attendance, and student age and grade level – multiple discriminant function analyses indicated an index combining reading and/or math test scores and attendance represented the best predictor of whether a student would remain in or leave school after age 16. Technical reports detailing development of the SPCI are available from the IRRE. Optimal levels on the SPCI represent a combination of students showing up regularly at school and doing well in reading or math. Risk levels represent those missing school regularly and/or doing poorly in reading or math.

Engagement. Researchers measured engagement from the perspective of students (RAPS-S) and teachers (RAPS-T). Items on both surveys were answered on a four-point, Likert-type scale, from 1 - “not at all true” to 4 - “very true,” with the exception of one item answered on a scale of 1 - “not at all important” to 4 - “very important.”

Student Reports of Engagement. As measured by the RAPS-S, engagement includes two components of student adjustment in school: Ongoing Engagement and Reaction to Challenge. Across the two components, there are 13

items at the elementary level ($\alpha = .71$), and 11 items at the secondary level ($\alpha = .77$).

Ongoing engagement includes the extent to which students exert effort on schoolwork, pay attention in class, prepare for class, and believe doing well in school is personally important. RAPS-S includes six items at the elementary level, and five items at the secondary level tapping ongoing engagement.

Reaction to Challenge includes different ways students may cope with, or react to, negative school-related events. Students may blame negative events on teachers or others (Projection). Students may downplay the importance of negative events (Denial). Students may persevere on events and worry about them without taking action to ensure such events do not re-occur (Anxiety Amplification). Finally, students may examine their behavior and attempt to change to prevent similar negative events from re-occurring (Positive Coping). Of the four reactions to challenge, items were selected that best related to positive or negative outcomes for students. With elementary students, only negative coping strategies were predictive of later outcomes. To ensure the survey was not construed as too negative, several positively worded items were added to the survey but were not included when analyzing the data. To tap into differing reactions, RAPS-S included seven items at the elementary level, and six items at the secondary level.

Teacher Reports of Student Engagement. Teachers completed the RAPS-T for each student in their classroom. Three items at the elementary and secondary levels ($\alpha = .81$ and $.87$, respectively) measured the extent to which students are attentive, come to class prepared, and do more

Table 1
Characteristics of the Sample

	Elementary	Secondary
Sample Size		
Total number of students in sample	1,846	2,430
Number of students with self-report data (RAPS-S)	1,846	2,430
Number of students with elementary school administrative records data for elementary sample or middle school administrative records data for secondary sample (RAPS-R)	1,600	1,661
Number of students with teacher-report data (RAPS-T)	1,750	1,347
Demographic Characteristics		
Age Range	7 through 13*	10 through 15**
Grades	3rd through 5th	6th through 8th
Ethnicity	81% African American	44% African American
	9% Euro American	39% Euro American
	10% Hispanic	16% Hispanic
		1% Other
Gender	51% Male	49% Male
	49% Female	51% Female
SES (Based on eligibility for free or reduced-price school lunches)	85% Eligible	58% Eligible

* For the elementary sample, approximately 3% were age 7, 21% age 8; 30% age 9, 30% age 10, 14% age 11, and 2% age 12. A single student was age 13.

** For the middle school sample, approximately 3% were age 10, 16% age 11, 28% age 12, 36% age 13, 16% age 14, and 1% age 15.

than required. Items responses on a four-point, Likert-type scale ranged from 1 - "not at all true" to 4 - "very true."

Experiences of Teacher Support. Experiences of Teacher Support included 10 items at the elementary level ($\alpha = .80$) and 14 items at the secondary level ($\alpha = .82$) that examined the extent to which students feel that adult(s): 1) are involved with them (eg, My teacher cares about how I do in school; My teacher likes the other kids in my class better than me); 2) provide support for autonomy (eg, My teacher doesn't explain why we have to learn certain things in school; My teacher thinks what I say is important.); and 3) provide structure (eg, My teacher is fair with me; My teacher's expectations of me are way off base).

Analysis Strategy

This study identified threshold levels on two components of the self-system processes model – experiences of support from teachers and student engagement, then estimated how much difference achieving these threshold levels make in the likelihood of success or difficulty on student achievement and performance outcomes later (ie, effect on SPCI).

Identifying Thresholds. Unlike traditional methods, threshold analysis shifts the focus from means (group averages) to knowing where individuals fall in relation to a standard. Threshold levels identify youth doing well (optimal levels), and those not doing well (risk levels). Optimal levels on model components describe the "tipping point" or threshold at which a student's chances for success on later components increase most significantly. Risk levels on components in the model identify the threshold at which a student's chances for difficulties on later components in the model increase most significantly.

By framing the results in terms of thresholds, school stakeholders and policymakers can set targets for how many more students they are expecting to meet or exceed optimal levels on particular outcomes because of an intervention and how many fewer students will be at risk levels on these outcomes. For instance, a school may try to raise the percentage of students who report high levels of teacher support by 20% and reduce the percentage who report low levels by 20% within two years of implementing school reform strategies designed to create a more personalized learning environment.

Identifying Resources and Liabilities. Gambone et al⁴⁹ expanded the threshold analytical strategy by creating a

technique for answering the question: How much difference does it make that students hit these thresholds or tipping points? To describe the positive or negative influence of earlier outcomes on later outcomes in their Community Action for Youth Framework, Gambone and colleagues examined earlier outcomes as resources or liabilities for later outcomes. According to Gambone et al, "resources are early experiences and outcomes that improve the chances adolescents will get into optimal levels on later outcomes; or that keep adolescents out of risk on later outcomes."⁴⁹ For example, good attendance and high test scores increases the likelihood a student will graduate from high school and go to college or reduces the risk the student will later be unemployed. "Liabilities refer to experiences or outcomes that contribute to youth getting into risk levels on later outcomes; or that keep adolescents out of optimal levels on later outcomes."⁴⁹ For example, poor attendance and low test scores increases the likelihood that students will drop out of high school or decreases the likelihood they will graduate from college. A detailed description of the threshold method is described at: www.ydsi.org/ydsi/publications/index.html. By applying this method of analysis, researchers can: 1) reconfirm that teacher support matters – it predicts student engagement, and academic performance and commitment; 2) find out how it matters (as a resource when students have it and as a liability when they do not); 3) identify levels of support that matter most (at least in this diverse sample of students); and 4) estimate how much those levels of support matter to students' future engagement and success in school.

RESULTS

In this paper, optimal and risk thresholds for the Student Performance and Commitment Index (SPCI) and engagement are reported, and then data on how much engagement matters for later success in school are presented. Thresholds associated with teacher support also are presented with estimates of how much teacher support matters for engagement in school.

Thresholds for Student Achievement and Behavior

Optimal and risk thresholds were identified for the SPCI for elementary and middle school students (Table 2). Not all youth fit in one of the two categories; some students fall between. This paper reports only those students who fall at or above the threshold represented by the optimal level and

Table 2
Thresholds for Student Performance and Commitment Index (SPCI)

	Elementary - SPCI	Secondary - SPCI
Optimal	<ul style="list-style-type: none"> ■ Attendance rate 97% or higher; AND ■ One or both of the following: <ul style="list-style-type: none"> ■ Reading percentile score 70% or higher; or ■ Math percentile score of 80% or higher 	<ul style="list-style-type: none"> ■ Attendance rate 93% or higher; AND ■ One or both of the following: <ul style="list-style-type: none"> ■ Reading percentile score of 70% or higher; or ■ Math percentile score of 65% or higher
Risk	<ul style="list-style-type: none"> ■ Attendance rate below 89%; OR ■ Reading percentile score below 35%; OR ■ Both 	<ul style="list-style-type: none"> ■ Attendance rate below 79%; OR ■ Reading percentile score below 25%; OR ■ Both

below the threshold represented by the risk level.

Once thresholds were established, the next step was to analyze the data to determine what proportion of students fell into optimal and risk levels on the SPCI. While nearly one-half (44%) of urban elementary students and approximately one-third (30%) of the more diverse sample of middle school students were at risk on attendance and/or test scores, only 16% of elementary and middle school students attained successful levels on both outcomes.

Thresholds on Engagement

Student Reports of Student Engagement. To determine thresholds on student perceptions of engagement, researchers needed to identify the level of engagement that differentiated between students likely to have success on the SPCI (attendance and test scores) and those who would not. This was defined as optimal level of engagement. In contrast, risk level of engagement was determined by identifying the level of engagement that most dramatically differentiated between students most likely to do poorly on test scores or have poor attendance rates and those who do not. Thresholds were based on the four-point answer scale for RAPS-S constructs (1 - "not at all true," 2 - "not very true," 3 - "sort of true," and 4 - "very true"). A mean score of 3.75 or higher on engagement items indicated elementary and middle school students reached an optimal level. Thus, a student must report "very true" to almost all engagement scale items (eg, I try hard, pay attention, come prepared, try to figure out what to do when something bad happens, etc.). For the risk level, elementary students needed a mean score less than 3.25, while middle school students needed a mean score less than 3.00, or regularly reporting the engagement indicators were, at best, only sort of true.

Approximately one-third of elementary (35%) and middle school (31%) students attained risk levels on engagement, indicating disengagement from school. A similar proportion of elementary students (27%) reached optimal levels while far fewer middle school students did (14%). These findings are consistent with the literature indicating a high proportion of students are not engaged in school and that some students become disengaged as they progress from elementary to middle to high school.

Teacher Reports of Student Engagement. To create an optimal threshold for teacher reports of student engagement, a cut point was identified where the sharpest increase in the probability of student success on the SPCI (attendance and test scores) occurred. To create a risk threshold, a cut point was identified where the most dramatic increase in the probability of students having poor test scores or poor attendance occurred. Thresholds were based on a four-point, response scale for the RAPS-T (1 - "not at all true," 2 - "not very true," 3 - "sort of true," and 4 - "very true"). For the optimal level, teachers needed to report elementary and middle school students recorded a mean score of 3.6 or higher on engagement items. Thus, teachers needed to indicate students were consistently tuned in, prepared for class, and doing more than necessary. For the risk level, teachers needed to report elementary students recorded a mean score less than 2.6 and middle school students as less than 2.3. Thus, teachers needed to indicate students almost always were not tuned in, prepared, or trying.

When using teacher reports of student engagement,

approximately one-fifth of elementary (22%) and middle school (19%) students were in optimal categories. For risk categories, 40% of elementary students and 17% of the middle school students demonstrated behaviors indicative of disengagement. Far fewer middle school students were disengaged from school according to teachers than according to students. This variation may be due to a difference in the measurement tool – teachers report observed behaviors while students report both behaviors and emotions – and warrants further examination in future studies.

How Much Does Engagement Matter to Student Achievement and Behavior?

Estimating how and how much high and low levels of engagement affect student performance and attendance was then examined. According to Gambone et al.,^{49(p24)} an outcome can act as a resource for later success in two ways: "it can either increase student's chances of reaching optimal levels on later outcomes or it can decrease his or her chances of being at risk on those outcomes....As a liability...it can either increase a student's chances of being at risk on later outcomes or can decrease his chances of being at optimal on those outcomes." Resources and liabilities for elementary and middle school students are presented.

High Engagement as a Resource and Low Engagement as a Liability for the Academic Performance and Attendance of Elementary Students. On the SPCI, 16% of elementary students were at optimal levels, and 44% were at risk levels. Elementary students reporting high levels of engagement were 44% more likely to do well and 23% less likely to do poorly on the performance and attendance index, with 23% of high-engagement students at optimal levels on the SPCI and 34% at risk levels. In contrast, students with low levels of self-reported engagement were 30% more likely to do poorly on the SPCI – an increase from 44% to 57% of students – and were 44% less likely to be at optimal levels (from 16% down to 9%) (Figure 2).

Elementary students reported by teachers as highly engaged were more than twice as likely to do well on the performance and attendance index, and 39% less likely to do poorly on the index than students not rated as highly engaged; with 34% of engaged elementary students at optimal levels on the SPCI, and 27% at risk levels.

In contrast, elementary students reported by teachers as showing low levels of engagement were 39% more likely to do poorly on the SPCI – an increase from 44% to 61% of students. These students also were 56% less likely to demonstrate high levels of attendance and academic performance, a decrease from 16% to 7% (Figure 3).

High Engagement as a Resource and Low Engagement as a Liability for the Academic Performance and Attendance of Middle School Students. A similar pattern was evident for middle school students. Overall, 16% of middle school students reached optimal levels, and 30% were at risk levels on the SPCI.

Middle school students with high levels of engagement were 75% more likely to do well on the attendance and achievement index, and 23% less likely to do poorly on the index, with 28% of high-engagement students doing well and 23% doing poorly on the SPCI. In contrast, middle school students with low levels of self-reported engagement were 27% more likely to do poorly, an increase in the percentage of students experiencing risk levels from 30% to

38%. These students also were 37% less likely to do well on the SPCI, a decrease in the percentage of students experiencing optimal levels from 16% to 10% of the sample (Figure 4).

Middle school students with high levels of teacher-reported engagement in school were more than twice as likely to do well on the attendance and achievement index, and were 67% less likely to do poorly on the SPCI. More than 36% of highly engaged middle school students did well on the SPCI, and only 10% were at risk levels. Middle school students whose teachers reported they were disaffected were 83% more likely to do poorly on the SPCI – an increase from 30% to 55%. They also were 81% less likely to show high levels of attendance and academic performance, a decrease from 16% to 3% of the sample at optimal levels (Figure 5).

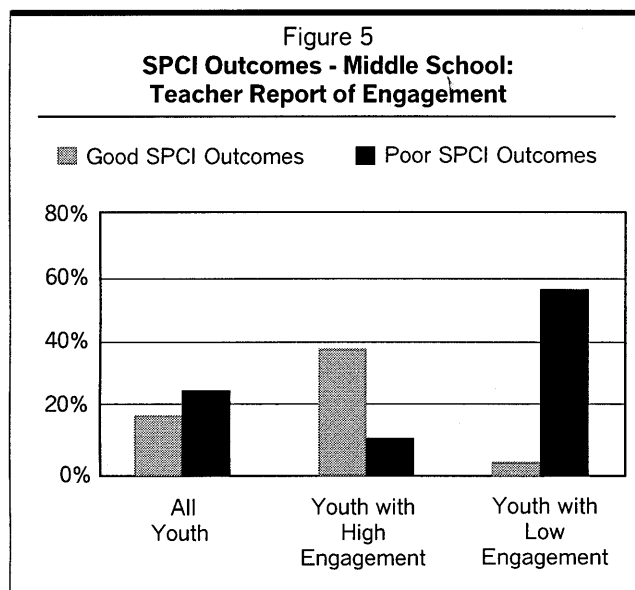
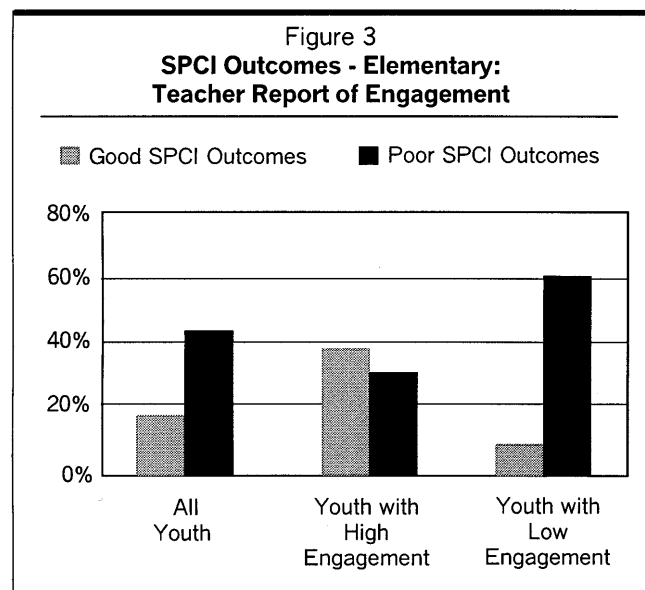
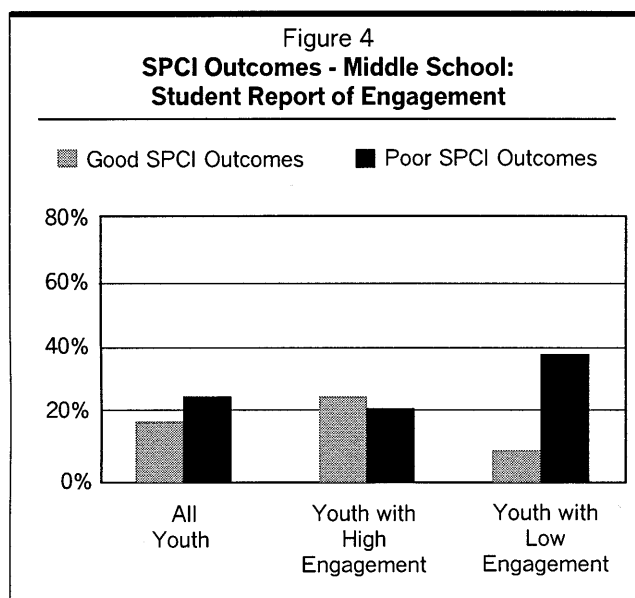
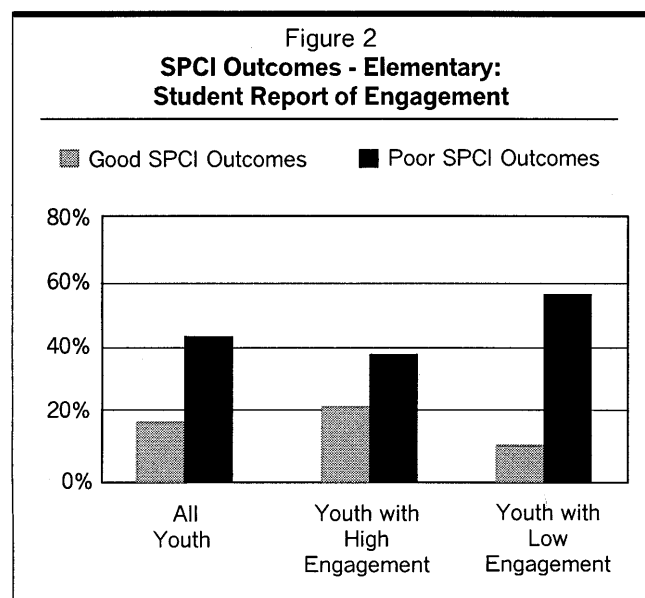
This analysis offers evidence of the relationship between student engagement and academic performance. However, teacher reports of student engagement are stronger predictors of student academic success than student reports (Table 3).

Thresholds for Teacher Support

Knowing engagement is associated strongly with student attendance and academic performance, both as a resource (high engagement) and a liability (low engagement), how much is engagement affected by teacher support?

To establish thresholds for teacher support, researchers identified cut points on the teacher support measure where the most significant increase in prediction of student engagement occurred. Cut points at the high end of teacher support – optimal levels – occur where the likelihood of high engagement increases and the chance of disaffection decreases most dramatically. Cut points at the low end of teacher support – risk levels – occur where the chances of high engagement decrease and low engagement increase most sharply. Thresholds were based on a four-point answer scale for RAPS-S survey items (1 - “not at all true,” 2 - “not very true,” 3 - “sort of true,” and 4 - “very true”).

Optimal level of teacher support was identified as an average of 3.50 or higher on teacher support items, a level indicating the student answered “sort of true” and “very



true” in almost equal proportions to the items (eg, my teacher likes me, listens to me, cares about how I do, is fair, explains the rules, has high expectations for me, etc.). Thresholds were the same for elementary and secondary students. Risk level of support for elementary students was defined as an average of 2.50 for the same items, indicating a student is equally likely to respond “not very true” or “not at all true” to items as they are to respond “very true” and “sort of true;” whereas the risk level of support was slightly higher for middle school students at a mean of 2.75 across support items.

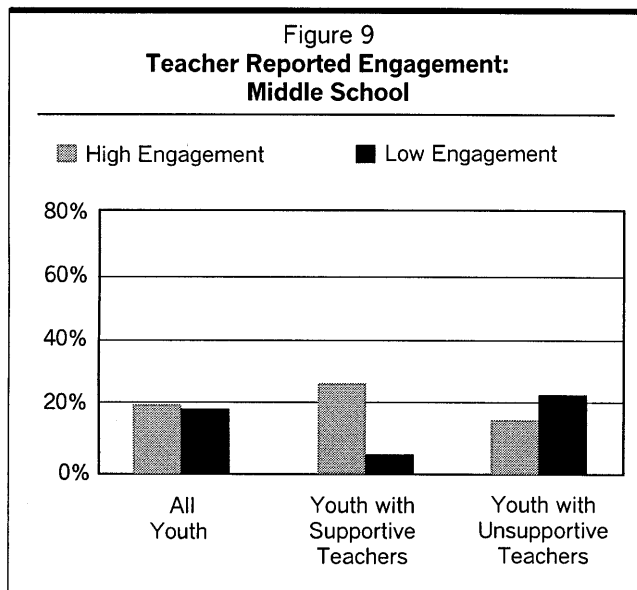
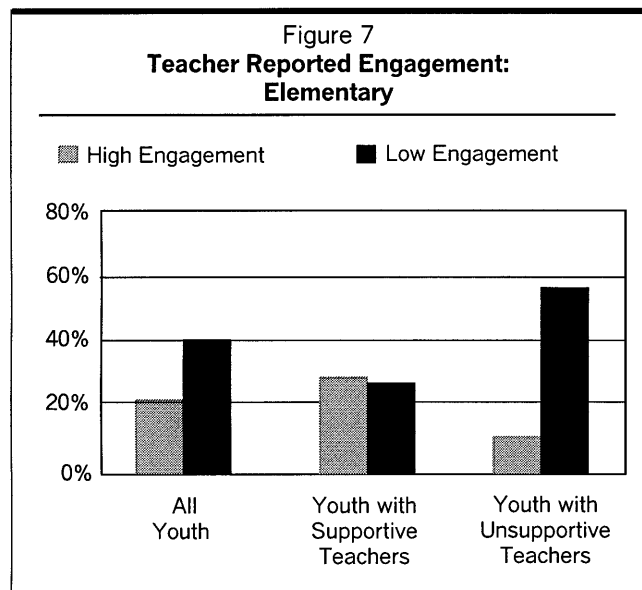
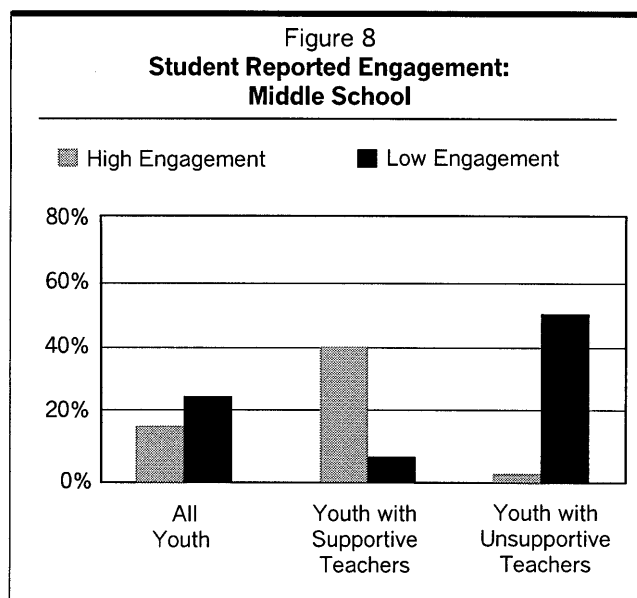
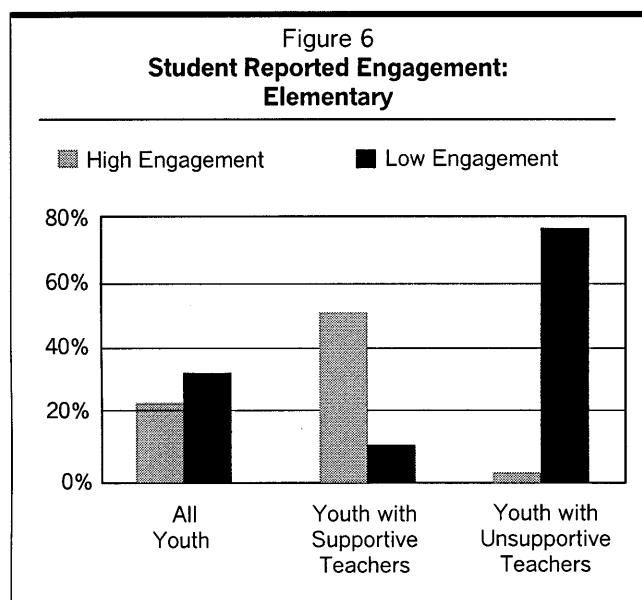
For elementary school students, 34% reported optimal levels of teacher support; 22% were in the risk category. Of middle school students, 16% were in the optimal range and 39% were in the risk category. As expected, more elementary students reported experiencing supportive teachers than middle school students.

High Levels of Teacher Support as a Resource and Low Levels as a Liability for Engagement of Elementary Students. Approximately one-quarter (27%) of elementary

students were at optimal levels of self-reported engagement, and one-third were at risk levels (35%). Elementary students experiencing high levels of teacher support were 89% more likely to feel engaged and 69% less likely to feel disaffected according to self-reports, with 51% of supported students optimally engaged, and 11% at risk levels of engagement. However, elementary students experiencing low levels of teacher support were twice as likely to feel disengaged from school – an increase from 35% to 73% of these students reporting risk levels of engagement. Unsupported students also were 93% less likely to feel engaged in school, a decrease in optimal levels from 27% to 2% (Figure 6).

For teacher-reported engagement, 22% of elementary students were at optimal levels, and 40% were at risk levels. However, elementary students reporting high levels of teacher support were 41% more likely to be identified as optimally engaged by teachers (from 22% to 31%), and 27% less likely to appear disengaged (from 40% to 29%).

Elementary students experiencing low levels of teacher



support were 40% more likely to be perceived as disengaged by teachers, up to 56% of the low-support students. Students reporting less-supportive teachers were 45% less likely to show optimal levels of engagement in the classroom, a decrease in optimal levels from 22% to 12% of the sample (Figure 7).

High Levels of Teacher Support as a Resource and Low Levels as a Liability for Engagement of Middle School Students. Only 14% of middle school students in the sample reported optimal engagement while 31% reported disengagement. Middle school students with high levels of teacher support were almost three times more likely to have high levels of engagement, and 74% less likely to feel disengaged, with 40% of supported students optimally engaged and only 8% disengaged. Middle school youth reporting low levels of teacher support were 68% more likely to be disengaged from school, an increase from 31% to 52% of the low- support students at risk levels on

engagement. These youth also were 71% less likely to be engaged in school, a decrease in optimal levels from 14% to 4% of students (Figure 8).

Similarly, teachers reported that 19% of middle school students were at optimal levels, while 17% were at risk levels on engagement. Middle school students experiencing high levels of teacher support were 47% more likely to appear engaged to teachers (from 19% to 28%). Highly supported students also were 47% less likely to appear disengaged (from 17% to 9% of the sample).

Middle school students whose teachers were perceived as unsupportive were 35% more likely to appear disengaged in class according to teacher reports, an increase from 17% to 23%. These students were 32% less likely to have teachers describe them as highly engaged in class, a decrease from 19% to 13% (Figure 9).

Student experiences of engagement were more strongly influenced by high levels of teacher support at middle

Table 3
Engagement and School Success:
Percent Change in Optimal and Risk Levels of Student Performance and Commitment

		Student-Reported Engagement		Teacher-Reported Engagement	
		Increase Optimal	Decrease Risk	Increase Optimal	Decrease Risk
High Engagement	Elementary	44%	23%	112%	39%
	Middle	75%	23%	125%	67%
		Student-Reported Engagement		Teacher-Reported Engagement	
		Increase Risk	Decrease Optimal	Increase Risk	Decrease Optimal
Low Engagement	Elementary	30%	44%	39%	56%
	Middle	27%	37%	83%	81%

Table 4
Teacher Support and Engagement:
Percent Change in Optimal and Risk Levels of Student Engagement

		Student-Reported Engagement		Teacher-Reported Engagement	
		Increase Optimal	Decrease Risk	Increase Optimal	Decrease Risk
High Teacher Support	Elementary	89%	69%	41%	27%
	Middle	186%	74%	47%	47%
		Student-Reported Engagement		Teacher-Reported Engagement	
		Increase Risk	Decrease Optimal	Increase Risk	Decrease Optimal
Low Teacher Support	Elementary	109%	93%	40%	45%
	Middle	68%	71%	35%	32%

school than at elementary school (Table 4). Middle school students with high levels of teacher support were 2½ times more likely to report engagement. In contrast, lack of teacher support had the largest effect on elementary student experiences of engagement. The effect was evident but not as strong for middle school students. Finally, the relationship between teacher support and teacher reports of student engagement in class was not as strong as the relationship between teacher support and student reports of engagement.

DISCUSSION

Recent federal and state legislation created explicit expectations for student performance and consequences for schools, teachers, and students that fail to meet expectations. These policy changes have raised the bar for students and educators in America's public schools. Researchers will soon experience the ripple effect of this "high expectations, high stakes" environment. Demand for "evidence" about what has worked and what will work, particularly in schools with diverse student populations, will continue. To respond responsibly and in a timely manner, forms of evidence must be credible, usable, and compelling.

This paper does not report any ground-breaking empirical findings; others have demonstrated empirical evidence of links between teacher support, student engagement, and student academic success.^{12,14-16,29,30,36,40}

Instead, this paper sought to present the results in ways viewed as more useful and compelling for school stakeholders and policymakers than previous findings. Methods used to establish thresholds on variables such as teacher support, engagement, and student performance and commitment provide program designers and investors information on how much of each variable is good enough and how little of each variable can do harm. By describing associations between teacher support and engagement as, for example, how much change there is in the likelihood of being highly engaged when you have highly supportive teachers, program designers and investors gain an idea of the payoff in student engagement associated with improving relationships between teachers and students.

Key Findings

These results indicate teacher support is important to student engagement in school as reported by students and teachers. Students who perceive teachers as creating a caring, well-structured learning environment in which expectations are high, clear, and fair are more likely to report engagement in school. In turn, high levels of engagement are associated with higher attendance and test scores – variables that strongly predict whether youth will successfully complete school and ultimately pursue post-secondary education and achieve economic self-sufficiency.⁴⁹ Links between teacher support, student engagement, and academic performance and commitment hold for both elementary and middle school students, providing further support for an indirect link between student experience of support and academic performance through student engagement.

In addition to these confirmatory findings, several patterns of results are noted. First, liabilities associated with low levels of teacher support were greater for elementary than middle school students. Elementary students reporting

low levels of support were twice as likely as the average student to be disaffected; middle school students were 68% more likely to be disengaged when they report low levels of teacher support. In contrast, resources associated with high levels of support were greater for middle than elementary students. Middle school students were almost three times more likely to report engagement if they experienced highly supportive teachers; elementary students with supportive teachers were 89% more likely to report engagement in school than those with typical levels of support. Why this differential effect of support on engagement – with middle school students reaping more benefits from high levels of support and elementary students more adversely affected by low levels of support than their older peers? The fact that elementary students typically have one primary teacher from which to draw support could explain stronger negative effects of low teacher support in elementary school. Why middle school students appear to benefit more from high levels of support is unclear.

Second, elementary students in this sample with high levels of self-reported engagement were 44% more likely to achieve high levels of academic performance and commitment than average students; at middle school the increase is 75%. Measures of teacher-reported engagement demonstrated an even stronger association with later performance – with elementary and middle school students with high levels of teacher-reported engagement more than twice as likely to do well in school than average students. Disengagement, as reported by teachers and students, adversely affects student performance and commitment. Why were teacher reports of engagement more strongly predictive of student performance than student reports?

Teacher measures of student engagement focus on behaviors tied directly to performance such as paying attention, staying focused, doing more than required. Self-report measures include behavioral components of engagement but also emotional and cognitive aspects. The latter two components correlated less strongly with academic performance and attendance than the former. Thus, students can show up and do the work without being emotionally or cognitively engaged. While these three components of engagement correlated positively, they were not close to perfectly correlated.

Third, teacher support associated highly with student engagement; but the association was weakest when looking at teacher reports of student disaffection – indicating some disaffected students receive high levels of support. Teacher reports on student engagement also make it possible to explore bi-directional relations between engagement and student experiences of support.⁷ In their self-system processes model, Connell and Wellborn⁷ hypothesized teacher support was affected by student engagement as well as vice versa. Engaged students pay more attention, look more interested, are more persistent in the face of challenges than disengaged students, and probably receive, on average, more support from teachers by doing so. Some teachers might provide more support to disengaged students – with these teachers believing the students need more attention to become engaged.^{7,9} Data presented are consistent with both hypotheses. Teasing apart these subtle bi-directional influences requires more sophisticated analyses of longitudinal data on teacher support and student engagement.⁹

FIRST THINGS FIRST: AN EDUCATION REFORM INITIATIVE

These findings suggest that by creating more personalized educational environments – one indicator of which would be increased experience of teacher support by students – student engagement, and higher attendance and test scores should result. Ultimately, to discover if and how teacher supports effect engagement and student success in school, researchers need to try and change those supports and see if change in engagement and performance results. A comprehensive evaluation of First Things First – an intervention targeted in part at changing relationships between teachers and students – should provide such evidence. The First Things First evaluation final report will appear in 2005, but some trends exist in variables of interest following two years of district-wide implementation.

First Things First (FTF), an education reform initiative for schools and school districts developed by the Institute for Research and Reform in Education, seeks to raise student academic performance to levels required for post-secondary education and high-quality employment.⁵⁰ The Institute works with partners around three goals: 1) strengthening relationships among students, school staff, and families; 2) improving teaching and learning in every classroom every day; and 3) reallocating budget, staff, and time to achieve goals one and two. To meet these goals, FTF helps create personalized environments by restructuring schools into small learning communities (SLCs), and integrates high-quality, standards-based teaching and learning in the SLCs.

In addition to small learning communities where small groups of teachers and students stay together for all core courses during the day and for the entire time they are in the school (eg, all three years of middle school or all four years of high school), FTF uses several other strategies to create personalized environments. SLCs become the place where staff members take collective responsibility for every student's success as well as make key decisions about discipline, staffing, time use, and budgets.^{43,51} Lee and Smith⁵² found that in more personalized schools (eg, communal versus bureaucratic), the most potent predictor of student outcomes differences was teachers' collective responsibility for learning.⁵³ Collective responsibility promoted student engagement and learning.^{53,54}

Another strategy for creating a caring environment for students is to provide them and their families with an advisor or advocate in the school. FTF developed the Family Advocate System with the goal of creating a bridge between the small learning community and families. Staff members in the SLCs become advocates for a small number of students and their families, stay with them the entire time they are in the school, and do whatever it takes to help those students succeed.^{55,56}

Early Outcomes Associated with FTF

While conclusions about the extent to which implementation of these reform components led to changes in teacher support, student engagement, and student performance must wait until the independent evaluation is completed, four trends emerged during the course of the initiative.

Trend 1. Percentages of students reporting high levels of support – calculated in ways similar to those used in this

paper – increased at elementary, middle, and high school levels.

Trend 2. Percentages of students reporting low levels of support – calculated in ways similar to those used in this paper – decreased at elementary, middle, and high school levels.

Trend 3. Attendance, persistence (students returning to school each year), and graduation rates improved in secondary schools.

Trend 4. System-wide improvement in academic performance was recorded the past two years. These preliminary results are consistent with the hypothesis that the First Things First intervention is affecting positive change in students experience of supports and, in turn, in their commitment to school and academic performance.

Interestingly, while teacher support and student commitment gradually improved during implementation of the First Things First initiative in this urban district, meaningful system-wide movement in standardized test scores did not emerge until after district-wide implementation of structural changes, specific instructional improvement strategies, and significant resource redirection to support the strategies. This suggests that personalizing the learning environment so students feel more supported by and connected to school is a necessary and foundational but not sufficient condition for academic improvement. The trend provides additional support for the conclusion reached by Lee and Smith⁵² that either teacher support or a focus on learning and high expectations leads to improved levels of engagement and achievement; however, the combination of the two far exceeds the outcomes associated with either one individually.

Another interesting observation noted in this urban school district is that the initial changes in student engagement and achievement were decreases in the percentage of students at risk on these variables. Fewer elementary, middle, and high school students experienced low levels of engagement in the course of the initiative, with the largest movement out of the risk levels occurring in middle and high school students. Similarly, movement occurred at both ends of state assessment scores with students moving into optimal levels and out of risk levels. However, the largest change was initially decreases in percentage of elementary, middle, and high school students scoring at the lowest levels and only recently have dramatic improvements in percentages of students achieving proficient levels been recorded.

Finally, anecdotal information about the FTF Family Advocate System suggests schools that provide students and families an in-school advocate can make a difference. Students and parents participating in this system reported the relationship with the advocate made a difference to their, or their child's, success in school. In addition, parent involvement increased; after only one year of implementing the Family Advocate System, parent conference attendance rates increased, particularly at the secondary level.

CONCLUSION

Other comprehensive school reform models developed similar strategies for creating personalized environments for youth.⁵⁷⁻⁶⁴ Comprehensive models involve several components operating simultaneously to improve how schools function. Consensus exists among researchers, policymakers, and school stakeholders that for any reform

initiative to effect student learning, it must address the complexities associated with schools. However, from a researcher's perspective, the problem with such complex initiatives is that it is difficult – if not impossible – to disentangle the effects of the different components of the initiatives. To date, comprehensive reform initiative evaluations have provided information about the relationship between quality of implementation and student outcomes. Future research in which different configurations of model components are present versus absent or being implemented well versus poorly might allow researchers to explore the pathways between specific strategies for changing the learning environment and the extent to which those changes influence teacher support, engagement, and ultimately, student performance. ■

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Measuring Student Relationships to School: Attachment, Bonding, Connectedness, and Engagement

Heather P. Libbey

Arose by any other name may still smell as sweet; but school connectedness by even the same name may mean something else entirely depending on who is using it. The literature includes a variety of definitions for school connectedness. Expanding the review reveals multiple related terms that may or may not have the same definition, elements, or theoretical framework. Some researchers study school engagement while others examine school attachment, and still others analyze school bonding. The various terms have created an overlapping and confusing definitional spectrum. Common terms in the health and education literature include school engagement, school attachment, school bonding, school climate, school involvement, teacher support, and school connectedness.

As the study of student connection to school has expanded, so too has the lexicon of terms, concepts, and measurement tools. In summarizing the literature to guide current practice and future research, the various terms and definitions need clarification. The intent is not to settle on a single term, though agreed on language may benefit future research. The goal of this paper is to clearly identify the various terms, constructs, and instruments used. Table 1 lists the terms and variables used to measure a student's relationship with school. Terms were selected based on conceptual and component interrelatedness. Arguably, other terms may fit equally well. Terms were selected based on a similarity to the term connectedness or a definition similar to that of school connectedness. Measures will be described briefly followed by identification of the common constructs of the different variables. In this paper, "school connectedness" represents the term used to refer to the study of a student's relationship to school.

MEASURES

Positive Orientation to School

Jessor and colleagues¹ used the phrase "positive orientation to school" to measure student attitudes and motivation toward school and learning. Through this construct they studied student attitudes toward school, such as how they felt about going to school, and the extent to which they valued academic achievement. While similar to other terms, the phrase "positive attitude toward school" was not used frequently.

School Attachment

Conversely, school attachment represents a common term for a sense of connection, and was used as a single variable and as part of a larger construct. Mouton and colleagues² described school attachment as students reporting the degree to which people at school like them. Moody

and Bearman³ refined the school connectedness scale in the National Longitudinal Study of Adolescent Health (Add Health) into a three-item scale termed school attachment. The scale included the degree to which students feel close to people at school, are happy to be at school, and feel like a part of school. To determine attachment, Gottfredson and colleagues⁴ measured student respect for teachers and the extent to which students care what teachers think of them.

Alternatively, Goodenow and others defined school attachment as a subscale of a larger construct. Goodenow developed the Psychological Sense of Membership survey to measure "school membership" based on Wehlage's theory of social membership.⁵ Within this theoretical framework, school attachment measured student-teacher relationships, whether the student cared what others think, and their investment in meeting other people's expectations. Similarly, Jenkins⁶ included school attachment as a subscale within "school bond." Jenkins based his measurement on Hirschi's social bonding theory. Both Jenkins (school bond) and Goodenow (school membership) included attachment, commitment, involvement, and belief in school rules as subscales within their measures.

School Bonding

Like school attachment, school bonding represents an umbrella term to encompass several aspects of a student's relationship to school. The Social Development Research Group defined school bonding as the presence of attachment and commitment.⁷ Attachment represents an emotional link to school, while commitment reflects an investment in the group. Jenkins⁶ also organized several constructs as part of school bonding by including commitment, attachment, involvement, and belief in school rules.

School Climate

Though school climate is included in this discussion of concepts related to school connectedness, it is not in reference to the vast educational research on school climate writ large, which encompasses a whole other lexicon of terms and definitions often including studies of the culture of the school as reported by various school community members (see Wilson's paper for further discussion of school climate). School climate in this paper refers to a measurement used by Simons-Morton and Crump⁸ that was first developed by Pyper and colleagues.⁹ The 14-item scale measured extent to which students feel teachers would help them, that school rules are fairly enforced, and the perception that teachers are supportive. Similarly, Coker and Borders¹⁰ measured school climate as student-teacher relationships and the presence of school spirit.

School Connection

As conceptualized by Brown and Evans,¹¹ school connection was an overarching measure with four aspects: commitment, power, belonging, and belief in rules. Within

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these domains survey questions explored student willingness to follow rules, teacher support, and student feelings of belonging at school. School connection also was used by Eccles and colleagues.¹² However, they included it under “school context,” which encompassed school regulation, school facilitation of autonomy, and connection. In the Eccles et al¹² measure, school connection included items about liking school and looking forward to going to school.

Conversely, school connectedness as originally used in Add Health analyses¹³ was a composite variable tapping multiple dimensions more specified in other scales. The original eight-item measure used in Add Health comprised items examining a student’s sense of safety, rule fairness, teacher support, and belonging.

School Context

School context may seem broader than attachment to school; however, the three subscales within it share similar

constructs with connectedness. School context includes school connection, school regulation, and school facilitation of autonomy.¹³ School connection was described previously. School regulation measured student perceptions of the quality of the academics, high academic expectations, and discipline. Facilitation of autonomy addressed the extent to which students had the opportunity to participate in decision making at school.

School Engagement

School engagement represents another common term to describe student relationships with school. Simons-Morton and Crump⁸ used it as a single variable to examine student academic motivation by asking if students pay attention in class, take school seriously, and want to do well academically. This functional measure of academic engagement was similar to Manlove’s¹⁴ measure of “school engagement,” which was operationalized as number of hours spent

Table 1
Terms and Variables Used to Measure Student and School Relationships

Name	Measurement	Authors
Positive Orientation to School (9 items)	Attitudes toward school <ul style="list-style-type: none"> How do you feel about going to school? Personal value in academic achievement	Jessor, Van Den Bos, Vanderryn, Costa, Turbin (1995)
School Attachment (20 items)	<ul style="list-style-type: none"> People at school like me. 	Mouton, Hawkins, McPherson, and Copley (1996)
School Attachment	<ul style="list-style-type: none"> I feel close to people at this school. I am happy to be at this school. I feel like I am a part of this school. 	Moody & Bearman (2002)
Attachment to School (10 items)	<ul style="list-style-type: none"> How important is what the teachers think about you? I have lots of respect for my teachers 	Gottfredson, Fink, and Graham (1994)
School Bond	Commitment <ul style="list-style-type: none"> Do you care if your homework is done correctly? Do you think that most of your classes are important? Do you think most of your classes are a waste of time? Have you been on the honor roll this year? Does it matter a lot to you what your grades are? Would you like to quit school now? Do you think an education is important? Do you think you will fail no matter how hard you try? Did you fail any courses this school year? How much education do you want to have before you stop going to school? Attachment <ul style="list-style-type: none"> Do you care a lot about what your teachers think of you? Do you have a favorite teacher in this school? Do most of your teachers like you? Do you like most of your teachers? I wish I went to a different middle school. It is easy for me to talk over schoolwork problems with most of my teachers. Most teachers are not interested in anything I say or do. How is your school compared to other middle schools? How are teachers compared to other middle school teachers? 	Jenkins (1997) based on Hirschi's social bonding theory

doing homework, grades, and test scores. Manlove added educational aspirations similar to Simons-Morton and Crump's.⁸ A related variable, though with a slightly different name, was student engagement as measured by Ryan and Patrick.¹⁵ Student engagement included two dimensions: self-regulated learning and disruptive behavior. Self-regulated learning contains items about student awareness of understanding their schoolwork and whether students check their work. Disruptive behavior consists of questions about the extent to which students disturb class, annoy the teacher, and do not follow directions. Ryan and Patrick¹⁵ found teacher support related to an increase in student engagement.

Conversely, the measure of school engagement used by Kalil and Ziol-Guest¹⁶ is quite different from the one used by Manlove or Simons-Morton and Crump. It included three variables involving a continuum of positive and negative affect from liking school to feeling frustrated and anxious about school. It also included questions about a

student's sense of alienation from school such as being lonely while at school and feeling left out.

Finn's¹⁷ measure of school engagement was more comprehensive than other constructs. It is also the only measure discussed here that included teacher perceptions. For Finn, school engagement included academic participation and identification with school. Attendance, student arriving in class prepared, absences/tardies, teacher report of student withdrawal and lack of compliance, and number of office visits for misbehavior measured academic participation. Identification with school was measured by the number of schools attended as reported by the student, the quality of the teacher-student relationship, student perception of popularity, and whether the student sees academics as useful in the future.

School Involvement

School involvement, like other concepts, was used as part of a larger construct, as a single variable, and at times

Table 1 (continued from previous page)
Terms and Variables Used to Measure Student and School Relationships

Name	Measurement	Authors
School Bond (continued)	Involvement <ul style="list-style-type: none"> Do you belong to the school band? Do you participate in intramural sports? During the present school year, have you tried to sell things to help your school raise money? Do you belong to the school orchestra? Do you participate in the student council? Do you attend school dances? Do you attend athletic events after school hours? Do you attend school concerts after school hours? Do you belong to the drama club? How much time each day do you spend doing: homework, studying for tests? Belief in School Rules <ul style="list-style-type: none"> Most school rules are fair. The principal is tough and too strict. Students are treated fairly. Rules are too strict. The principal is fair most of the time. The punishments are the same no matter what. Teachers are too strict. Are all student ethnic groups treated the same. 	Jenkins (1997) based on Hirschi's social bonding theory
School Bonding <ul style="list-style-type: none"> Attachment Commitment 	<ul style="list-style-type: none"> I like school. Most mornings I look forward to going to school. I do extra schoolwork on my own When I have an assignment to do, I keep working on it until it is finished. I like my classes this year. 	Hawkins, Guo, Hill, Battin-Pearson, and Abbott (2001)
School Climate	<ul style="list-style-type: none"> Students get along well with teachers. There is a real school spirit. The teaching is good at school. Teachers are interested in students. Teachers praise my efforts. 	Coker and Borders (2001)

as a group of items within a variable. It was most commonly a measure of student participation in school and classroom activities. Involvement was part of school membership⁵ and school bond.⁶ Items within these scales asked about student activities such as band, athletics, attending events, and student council. Manlove¹⁴ included involvement in religious organizations at school in school engagement. Caspi and colleagues¹⁸ measured school involvement as a distinct variable. Their instrument asked students to place themselves within a series of concentric circles with regard to their participation in school activities. They asked students, "How far from the center of things are you?"

Student Satisfaction with School

Student satisfaction with school was created for a predominantly European school survey, the Health Behaviour in School Survey, that included school climate.¹⁹ As an outcome variable it was used to understand the elements of school climate that have the most significant relationships with student satisfaction. The three items of this measure include liking school, school is a nice place to be, and going to school is boring. Of the various elements studied, safety, fair treatment, teacher support, and student support had the strongest associations with student satisfac-

tion with school.

Student Identification with School

Using confirmatory factor analysis, Voelkl²⁰ tested whether school belonging and valuing school were two independent measures of student relationships with school or if both were more accurately reflected in one measure, "identification with school." The belonging scale included items that asked students if they liked being at school, participated, and were treated with respect. Valuing was measured with items that asked about the importance of school. Identification with school was a combination of all the items from the two scales. Analysis demonstrated the two measures were correlated at .85 and do not appear to better explain the correlations among the items than the single scale. As such, researchers could choose one dimension or two based on their theoretical design.

Teacher Support

Teacher support was most often nested within other measures such as school climate, attachment, belonging, and identification with school. For example, Resnick et al¹³ defined school connectedness as teacher support, safety, belonging, fair discipline practices, and whether the student liked school. However, Rosenfeld, Richman, and Bowen²¹

Table 1 (continued from previous page)
Terms and Variables Used to Measure Student and School Relationships

Name	Measurement	Authors
School Connection	Commitment <ul style="list-style-type: none"> ■ I can be a success at this school. ■ It pays to follow the rules at my school. ■ My schoolwork helps in things that I do outside school. ■ I can reach my goals through this school. Power <ul style="list-style-type: none"> ■ Adults at this school listen to students' concerns. ■ Adults at this school act on students' concerns. ■ The principal at this school asks students about their ideas. ■ I have many opportunities to make decisions at my school. Belonging <ul style="list-style-type: none"> ■ I can be myself at school. ■ I feel like I belong at this school. ■ I have friends at this school. ■ I am comfortable talking to teachers at this school about problems. Belief <ul style="list-style-type: none"> ■ The rules at my school are fair. ■ We do not waste time in my classes. ■ Students of all racial and ethnic groups are respected at my school. ■ When students have an emergency someone is there to help. 	Brown and Evans (2002)
School Connectedness	<ul style="list-style-type: none"> ■ You feel close to people at your school. ■ You feel like you are a part of your school. ■ You are happy to be at your school. ■ The teachers at your school treat students fairly. ■ You feel safe at your school. ■ How much do you feel that your teachers care about you? 	Resnick et al (1997)

studied teacher support as a separate variable. Students were asked to report on relationships with their teachers and whether they felt teachers cared about them. Ryan and Patrick¹⁵ also measured teacher support separately to determine if it was related to changes in student motivation and engagement in school. School support variable items included student perceptions of the extent to which their math teacher respects student opinions, understands how students feel, and helps when students are upset.

DISCUSSION

Though the organization and names may differ, many of the variables share similar constructs. While each measure has unique elements, nine salient constructs that relate to school connectedness appear: 1) academic engagement, 2) belonging, 3) discipline/fairness, 4) extracurricular activities, 5) likes school, 6) student voice, 7) peer relations, 8) safety, and 9) teacher support. In Table 2, the nine themes are mapped on a grid across the various school connectedness measures to demonstrate the extent to which the measures overlap and include numerous themes.

Academic Engagement

This construct addressed the extent to which students are motivated to learn and do well in school. The Social Development Research Group's measurement of "school bonding" incorporated whether the student does extra work and completes homework.⁷ This functional measure of academic engagement is similar to Ryan and Patrick's¹⁵

"student engagement" as well as Manlove's¹⁴ measurement of "school engagement," which included the number of hours spent doing homework, grades, and test scores. Manlove also included educational aspirations, which was similar to Simons-Morton and Crump's⁸ measurement of "school engagement." Jenkins⁶ included several questions about academic motivation in the commitment variable within his school bond study. The scale consisted of caring if homework is done correctly, being on the honor roll, caring about grades, and importance of education. In addition, Voelkl's²⁰ analysis of the valuing school scale, part of the identification with school measure, included items about the importance of school.

Belonging

Some variables include items about a student's sense of being a part of school, and two scales are labeled belonging.^{11,20} Voelkl's²⁰ measure, possibly the most expansive, included items such as being proud of school, feeling respected, activity participation, being able to talk to teachers, school as a favorite place, and people being interested in students. Brown and Evans¹¹ included a direct question about whether a student feels he/she belongs as well as being able to be himself, having friends, and talking to teachers about friends. Moody and Bearman³ also included an item asking students directly if they feel a part of the school. Alternatively, Kalil and Ziol-Guest¹⁶ measured the lack of belonging when they asked students whether they felt lonely at school and left out. The Add Health measure

Table 1 (continued from previous page)
Terms and Variables Used to Measure Student and School Relationships

Name	Measurement	Authors
School Context	<p>School connection (3 items)</p> <ul style="list-style-type: none"> ▪ You look forward to going to school every day. ▪ In general, you like school a lot. <p>School regulation (8 items)</p> <ul style="list-style-type: none"> ▪ At the school I go to now, all the kids are expected to do well in their work. ▪ The academic program is very good. ▪ There is good discipline. <p>School's facilitation of autonomy (7 items)</p> <ul style="list-style-type: none"> ▪ How many of the teachers you know are willing to listen to suggestions made by students? ▪ How often are students encouraged to do projects of their own choosing? ▪ How often are students involved in making decisions that affect them. 	Eccles, Early, Frasier, Belansky, and McCarthy (1997)
School Climate (14 items from Pyper, Freiberg, Ginsburg, and Spuck, 1987)	<ul style="list-style-type: none"> ▪ At least one teacher would help me if I had a problem. ▪ The rules are enforced fairly. ▪ There are kids I like in most of my classes. ▪ Teachers provide students a lot of support. ▪ Students respect each other. 	Simons-Morton and Crump (2002)
School Engagement	<ul style="list-style-type: none"> ▪ I want to do well at this school. ▪ I pay attention in class. ▪ I take school seriously. 	

of school connectedness also included an item about feeling part of school.¹³

Discipline and Fairness

Belief in school rules was the variable that contained questions about student perception of school discipline. Studies of school connection¹¹ and school bonding⁶ included the construct of discipline. Students were asked if the principal and staff were too strict. Fairness represents a related construct. Several variables attempted to measure the extent to which students perceive the rules of school to be enforced fairly, whether all ethnic groups were treated the same, and if school discipline was good. School climate,⁸ school bond,⁶ school connectedness,¹³ school connection,¹¹ and school context/regulation¹² all included items that measure student perception of fairness.

Likes School

A common construct found in several variables was the degree to which students like their schools. The Social Development Research Group asked if students looked forward to going to school and liked their school and classes.⁷ The school connection variable within the school context measure and the student satisfaction measure included similar questions.^{12,19} Kalil and Ziol-Guest¹⁶ measured students' feelings about their school and included items on student mood, enthusiasm, and enjoyment. Moody and Bearman³ also requested information on happiness as part of the school attachment scale; the same item was part of the Add Health school connectedness scale.¹³ The positive orientation to school variable asked how students feel about school.¹ In addition, Voelkl's²⁰ scale of belonging included an item that asked if school was a favorite place.

Table 1 (continued from previous page)
Terms and Variables Used to Measure Student and School Relationships

Name	Measurement	Authors
School Engagement	Positive affect <ul style="list-style-type: none"> ▪ I like being in my school. ▪ Most of the time, being in my high school puts me in a good mood. ▪ I often feel excited and enthusiastic in my high school. ▪ I enjoy my high school. ▪ I am happier at my high school than when I am not at school. Negative affect <ul style="list-style-type: none"> ▪ I often feel frustrated when I do school work. ▪ I feel tense and anxious much of the time I am in my high school. ▪ My high school often makes me feel bad. ▪ I often don't feel good about myself when I'm in school. ▪ I am often angry when I am in my high school. School Alienation <ul style="list-style-type: none"> ▪ I often feel lonely at my high school. ▪ I feel like I don't have many friends at my high school. ▪ I feel left out from other kids in my high school. ▪ I feel like people at my high school don't really know me. 	Kalil and Ziol-Guest (manuscript)
	Classroom and school academic participation <ul style="list-style-type: none"> ▪ Attendance. ▪ Preparation - students report number of times he/she came to class without paper/pencil, homework. ▪ Behavior - number of times sent to office for misbehavior. ▪ Absences/tardies - teacher report. ▪ Withdrawn - teacher report of student withdrawal or passivity. ▪ Not engaged - teacher report of student compliance. Identification with school <ul style="list-style-type: none"> ▪ Moves - parent report of number of moves. ▪ Student/teacher relationship - student report of getting along with teachers, if there is real school spirit, teacher interest in students, teacher praise of students, teachers listen to students, students feel put down by teachers. ▪ Perceptions - student report of whether he/she is popular. ▪ Utility - student report of whether academic subjects will be useful in future. 	
School Engagement		Finn (1993)

Student Voice

Opportunities for students to participate in decision making was a construct measured in two variables, both of which were aspects of a larger construct. Brown and Evans¹¹ examination of school connection included this construct within the power variable. Students responded to queries about whether the principal asked students about their ideas and students have opportunities to make decisions. Eccles et al¹² described the combination of similar items as “school’s facilitation of autonomy.” In addition to the items similar to the ones described, there are items that ask whether students can design independent projects and teachers listen to student suggestions.

Extracurricular Activities

Participating in non-academic activities associated with school was often an element of measuring students’ connection to school. Students were typically asked to report if they were involved in a list of possible activities. Voelkl’s²⁰ school belonging scale included a question about participation. Goodenow⁵ described it as involvement in the school membership survey. Jenkins⁶ also termed it involve-

ment under the school bond umbrella. Another measure also used involvement as the descriptor for student participation in activities.¹⁸

Peer Relations

Several variables contained questions addressing peer relationships. Simons-Morton and Crump⁸ included peer relationships in their school climate scale. Within the school engagement study by Kalil and Ziol-Guest¹⁶ students were asked about feelings of loneliness and the presence of friends in school as part of the school alienation scale. Respondents answered questions about whether other students like them in two of the school attachment variables.^{2,3} Additionally, the belonging variable included by Brown and Evans¹¹ asked if students have friends in school.

Safety

Safety, as it relates to school connectedness, measured the extent to which students reported that they feel safe in school. Add Health included an item about safety in its school connectedness variable.¹³ Though not an item in their satisfaction with school scale, in the HBSC Samdal et

Table 1 (continued from previous page)
Terms and Variables Used to Measure Student and School Relationships

Name	Measurement	Authors
School Engagement	<ul style="list-style-type: none">Grades.Test scores.Homework hours.Educational aspirations.Retained a grade.Teacher ratings of ability.Involvement in religious organization at school.	Manlove (1998)
School Involvement	<ul style="list-style-type: none">How far from the center of things are you?Students report involvement in school activities via placement within concentric circles.	Caspi, Moffitt, Wright, and Silva (1998)
School Membership	Attachment <ul style="list-style-type: none">Personal investment in meeting the expectations of others.Caring what others think.Positive reciprocal teacher and student relations. Commitment <ul style="list-style-type: none">Complying with school rules and demands. Involvement <ul style="list-style-type: none">Active participation in school activities and tasks. Belief <ul style="list-style-type: none">Valuing and trusting the institution.	Based on Wehlage's theory, Goodenow developed an 18-item student survey: Psychological Sense of School Membership (PSSM) from Hagborg (1998)
Student Engagement	Self-regulated learning (6 items) <ul style="list-style-type: none">When I am working on a math problem, I think about whether I understand what I am doing.When I finish my math work, I check to make sure it is done correctly. Disruptive behavior (5 items) <ul style="list-style-type: none">I disturb the lesson in math class.I behave in a way that annoys my math teacher.I do not follow my math teacher's directions.	Ryan and Patrick (2001); Adapted from Motivated Strategies for Learning Questionnaire (Pintrich, Amith, Garcia, and McKeachie, 1993) and Zimmerman and Martinez-Pons (1988)

al¹⁹ found safety was related significantly to student satisfaction with school.

Teacher Support

Teacher support was the most common theme that emerged from the variables reviewed. Most scales included items asking if a student felt close to and valued by teachers and school staff. It was part of both school climate measures, attachment, belonging/identification, membership/attachment, bond/attachment, connection/power, connection/belonging, connection/belief, context/autonomy, engagement/identification with school, and of course the aptly named teacher support.^{2,4-8,10-12,17,21} Measurement of teacher support included items such as feeling the teacher will help if the student has a problem, provision of support, positive reciprocal relationships, feeling liked by the teacher, caring what teachers think, praise from teachers, student report of good teaching, staff listening to students and then acting, and feeling comfortable talking to teachers.^{15,21} Student relationships with school often were operationalized as their relationship with their teachers.

CONCLUSION

Researchers use a variety of names and methods to measure student attachment and being a part of school. So much so, that even within the same dataset it is measured by different scales with different names (eg, within Add Health there are different measures used by Resnick, Bearman, Blum, et al;¹³ Moody and Bearman;³ McNeely, Nonnemaker, and Blum²²). However, some consistent themes emerged. A student's sense of belonging and being a part of school, whether or not students like school, level of teacher supportiveness and caring, presence of good friends in school, engagement in current and future academic progress, fair and effective discipline, and participation in extracurricular activities can be traced across several measures of school connection. The pre-eminence of one construct versus the others cannot be determined by current research. All demonstrated salience whether measured functionally (grades and participation) or affectively (liking and belonging). What is important within the extensive research, in both the health and education literatures, is that these factors, measured in different ways, were associated

Table 1 (continued from previous page)
Terms and Variables Used to Measure Student and School Relationships

Name	Measurement	Authors
Student Identification with School	Belonging <ul style="list-style-type: none"> ▪ Proud of school. ▪ Treated with respect. ▪ Attention when cause trouble. ▪ Participate in activities. ▪ Teachers don't care. ▪ Rather be out of school. ▪ Teachers can talk to. ▪ Favorite places. ▪ People interested in me. Valuing <ul style="list-style-type: none"> ▪ Get a good job. ▪ School important in life. ▪ Things in class useless. ▪ School useful for job. ▪ Waste of time. ▪ Mistake to drop out. ▪ School important. 	Voelkl (1996)
Student Satisfaction with School	<ul style="list-style-type: none"> ▪ I like school. ▪ School is a nice place to be. ▪ Going to school is boring. 	Samdal, Nutbeam, Wold, and Kannas (1998)
Teacher Support (9 T/F items)	<ul style="list-style-type: none"> ▪ My teachers really care about me. 	Rosenfeld, Richman, and Bowen (2000)
Teacher Support	<ul style="list-style-type: none"> ▪ Does your math teacher respect your opinion? ▪ Does your math teacher really understand how you feel about things? ▪ Does your math teacher try to help you when you are sad or upset? ▪ Can you count on your math teacher for help when you need it? 	Ryan and Patrick (2001); Adapted from the Teacher Support subscale in the Classroom Environment Scale (Moos and Trickett, 1974)

highly with student outcomes. Whether examining academic performance or involvement with a range of health behaviors, young people who feel connected to school, that they belong, and that teachers are supportive and treat them fairly, do better.

Some contend the business of school is teaching for knowledge acquisition and that attention to the non-academic aspects of school are a low priority. However, the health and education literature suggests these factors contribute significantly to school success. ■

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Table 2
School Connectedness Measures by Themes

	Academic Engagement	Belonging	Discipline and Fairness	Likes School	Student Voice	Extracurricular Activities	Peer Relations	Safety	Teacher Support
Positive Orientation to School ¹	■			■					
School Attachment ²							■		
School Attachment ³		■		■			■		
Attachment to School ⁴									■
School Bond ⁶	■		■			■			■
School Bonding ⁷	■			■					
School Climate ¹⁰									■
School Connection ¹¹	■	■	■		■		■		■
School Connectedness ¹³		■	■	■				■	■
School Context ¹²			■	■	■				
School Climate and School Engagement ⁸	■		■				■		■
School Engagement ¹⁶		■		■			■		■
School Engagement ¹⁷	■				■		■		■
School Engagement ¹⁴	■								
School Involvement ¹⁸						■			
School Membership ⁵					■	■			■
Student Engagement ¹⁵	■								
Student Identification with School ²⁰	■			■		■			■
Student Satisfaction with School ¹⁹				■					
Teacher Support ²¹									■
Teacher Support ¹⁵									■

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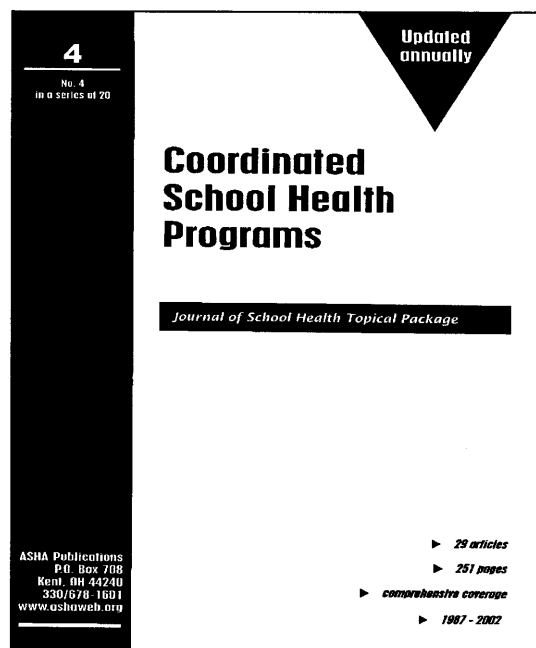
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School Connectedness and the Transition Into and Out of Health-Risk Behavior Among Adolescents: A Comparison of Social Belonging and Teacher Support

Clea McNeely, Christina Falci

Supportive and caring relations within families promote academic achievement and protect against involvement in health-risk behaviors by adolescents.¹⁻⁴ Similarly, supportive and caring relationships within schools (henceforth, school connectedness) promote academic motivation among adolescents.⁵⁻¹¹ Much less is known, however, about the influence of school connectedness on adolescent health-risk behaviors. Previous research generally suffers from two limitations. First, most research is cross-sectional.¹²⁻¹⁵ The longitudinal research that does exist does not distinguish between initiation or escalation or reduction of health-risk behaviors.^{16,17} Second, school connectedness has generally been treated as a broad construct that combines students' perceptions of safety, support, belonging and engagement.^{12,13,16,17} Such a broad conceptualization does not provide clear guidance to policy makers and practitioners on how to increase school connectedness. This paper addresses these limitations by exploring the association between two dimensions of school connectedness – perceived teacher support and social belonging – and the initiation, escalation and reduction of participation in six adolescent health-risk behaviors.

BACKGROUND

Cross-sectional studies show that school connectedness is associated with mental health and lower rates of involvement in multiple health-risk behaviors, including substance use, sexual intercourse, violence, delinquency, and suicidality.¹²⁻¹⁵ One quasi-experimental study, the Seattle Social Development Study, evaluated the effects of increasing the school social bond among elementary school students. The intervention group had significantly higher levels of school connectedness than the control group at ages 13 and 18, and was less likely to engage in violence or substance use.^{16,17}

Three dimensions of school connectedness are emphasized in educational research: social support, belonging and engagement.^{11,18-22} When young people receive empathy, praise, and attention in a clear and consistent fashion, they experience social support. The experience of social support generates a sense of belonging which, in turn, leads to increased engagement and academic motivation. Although this theoretical model, originally laid out by Connell and Wellborn,¹¹ has been empirically supported for academic outcomes, it has not been tested for health outcomes. Most previous studies linking school connectedness to health-risk behaviors combine the different dimensions of school connectedness into a single measure or explore the effect of a single dimension. Drawing on the theoretical framework

of Connell and Wellborn, we hypothesize that teacher support will lead to delayed initiation of health-risk behaviors, less escalation of involvement once the behavior is initiated, and increased cessation of health-risk behaviors, and that the effect of teacher support will be mediated by social belonging.

METHODS

The Sample

Data were drawn from the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative sample of American adolescents in grades 7-12 in 1995. The primary sampling frame for Add Health was US high schools. A stratified sample of 80 high schools was selected with probability proportional to the school's enrollment. A single feeder school was selected for each high school with probability of selection proportional to the percentage of the high school's entering class that came from the feeder school. Add Health includes private, religious, and public schools from communities located in urban, suburban, and rural areas of the country.²³

All students in the eligible grade range at the participating schools were asked to complete in-school questionnaires during the 1994-1995 academic year. Based on rosters of students from each school and the in-school questionnaires, a representative sample of students was selected for wave 1 in-home data collection. The response rate was 78.9%, yielding a sample of 20,745 students completing an in-home questionnaire. Of these, 1,821 cases were not assigned sampling weights. A second interview was conducted during the following academic year for all students except the 12th graders and a few select subsamples. The wave 2 response rate was 88.2% ($n = 14,738$). The present analysis restricts the sample to those students who responded to both wave 1 and wave 2 surveys and who were assigned survey weights at wave 2 ($n = 13,570$).

Measures of School Connectedness

Add Health contains six questions that tap aspects of connection to school. Three of the questions were developed by Bollen and Hoyle to measure social belonging.¹⁹ Students were asked how much they agreed or disagreed with the following statements: "You feel close to people at your school," "You feel like you are part of your school," and "You are happy to be at your school." If the survey was administered during the summer, the questions were asked in the past tense, for example, "Last year, you felt part of your school." Responses were recorded on a five-item Likert-type scale ranging from "strongly agree" to "strongly disagree."

Another three items asked the adolescent about his or her perceptions of their teachers. The first question asked students to report how much they agreed or disagreed with the statement, "The teachers at your school treat students

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fairly.” Response categories ranged from “strongly agree” to “strongly disagree.” A second question asked, “Since school started this year, how often have you had trouble getting along with your teachers?” The five response categories were “never,” “just a few times,” “about once a week,” “almost every day,” and “every day.” Responses to this question were reverse-coded. The third question about teachers appeared in a different section of the survey that asked about how much different people in the young person’s life care about him or her. The question was, “How much do you feel that your teachers care about you?” The five response categories were “not at all,” “very little,” “somewhat,” “quite a bit,” and “very much.”

Principal components and confirmatory factor analysis were conducted to determine whether the social belonging items and the items regarding teacher support comprised two separate factors or a single construct of school connectedness. The three social belonging measures loaded on one principal component, whereas the three teacher support items loaded on a second factor.^{19,24} This two-factor model was tested using confirmatory factor analysis, and found to have good model fit.²⁴ The social belonging measure had excellent reliability for a three-item scale ($\alpha = .78$). The teacher support scale had modest reliability ($\alpha = .63$), probably because two scale items addressed students’ individual relationship with their teachers whereas the third item asked how teachers treat all students in the school. The correlation between the two measures of school connectedness was moderate ($r = 0.43$).

Measures of Health-Related Outcomes

The six health-related outcomes comprising a broad array of adolescent health behaviors were measured at both wave 1 and wave 2 to model the initiation, escalation and cessation of behaviors.

Cigarette smoking was defined as a three-category variable based on the number of days students reported smoking cigarettes during the previous 30 days. No cigarette use was defined as not having smoked in the past 30 days. Occasional smoking was defined as having smoked on 1-19 days, and regular smoking was defined as having smoked on 20-30 days of the previous 30 days.

Alcohol use was also defined as a nominal variable with three categories indicating the frequency with which the student reported getting “drunk or very, very high on alcohol” during the previous 12 months. No alcohol use was defined as never having gotten drunk, occasional use was defined as having gotten drunk up to once a month or less, and regular alcohol use was defined as having gotten drunk 2-3 days a month or more.

Marijuana use was defined as a nominal variable with three categories – no use, occasional use and regular use – based on the number of times a student reported smoking marijuana during the last 30 days. No marijuana use was defined as not having smoked marijuana, occasional use was defined as having smoked marijuana four or less times, and regular use was defined as having smoked marijuana more than four times in the previous 30 days.

Suicidality is a three-category variable indicating whether or not a student had seriously considered suicide in the past year and, if so, whether or not they had attempted suicide. The three categories are: no suicidal thoughts, suicidal thoughts in the past year, and suicide attempt in the

past year.

Transition to first sexual intercourse was defined as a three-category variable indicating whether adolescents who never had sex at wave 1 had sex by the wave 2 interview, and, among those who had sexual intercourse by wave 2, whether a condom was used the first time the adolescent had sex. The three categories were labeled never had sex, first sex with condom and first sex without condom. Initiation of sexual intercourse was determined by the question, “Have you ever had sexual intercourse? When we say sexual intercourse, we mean when a male inserts his penis into a female’s vagina.” Condom use was measured with a series of questions asking respondents what form of birth control they used, if any, when they had sex the first time. Respondents could report up to three different methods of birth control.

Weapon-related violence was defined as a dichotomous variable indicating whether the adolescent committed at least one of the following acts in the previous year: threatened to use a weapon to get something from someone, pulled a knife or gun on someone, shot or stabbed someone, used a weapon in a fight, or hurt someone badly enough to need bandages or medical care.

Measures of Background Characteristics

The models included five potential confounding sociodemographic characteristics: race/ethnicity, age, gender, family structure, and household income. They also included depressed mood, parental attachment, and grade point average, three factors known to predict both school connectedness and the health-risk behaviors. Depressed mood was measured by an index comprised of the following four items: felt depressed, felt lonely, felt sad, and could not shake the blues. The index ranged between 1 and 13, and indicated good reliability ($\alpha = .83$). Parental attachment was measured by six items assessing attachment to both mothers and fathers. Adolescents answered a set of three questions separately for each parent. One item asked, “How close do you feel to your mother/father?” with five response choices ranging from not at all to very much. The other two items were also statements with five response choices, from strongly agree to strongly disagree: “Most of the time, your mom/dad is warm and loving to you,” and “Overall, you are satisfied with your relationship with your mother/father.” If respondents only reported on one parental-figure, then the parental attachment measure is based on one parent. The index ranged between 1 and 18, and had good alpha reliability of .80 (.76 for mothers only and .79 for fathers only). All regression models in the study controlled for these background characteristics; however, for simplicity and clarity we did not report the coefficients for the control variables. In the suicidality models, history of family suicide was also included as a control variable.

Analytic Strategy

We used conditional multinomial logistic and conditional logistic regression to model the probability of transitions both into and out of six health-risk behaviors. For every behavioral status at wave 1, we modeled the transition to every other possible behavioral status at wave 2. Specifically, for adolescents who have no or occasional involvement in health-risk behaviors at wave 1, we modeled the probability of increased involvement by wave 2. For

adolescents who had occasional or regular involvement in health-risk behaviors at wave 1, we modeled the probability of decreased involvement over time. All analyses were done in Stata 8.0 using sampling weights and adjusting for the complex sampling design.²⁵

RESULTS

Descriptive Statistics

The description of the sample is presented in Table 1. On average, most students feel a sense of belonging and that their teachers respect and care about them. The value

of both scales is just over nine out of a possible eleven points. Nonetheless, there is good variability in the measures, and the responses span the full possible range of one to eleven. Taken together, the reported prevalence of behaviors reveals that most American middle and high school students do not engage in health-risk behaviors. Just over a quarter (27%) of students reported using cigarettes in the previous month. Of those who did report smoking, one-half were experimental smokers (smoked less than 20 days in the previous month) and one-half were regular smokers. Seventeen percent of students said they occasionally had gotten "drunk or very, very high" on alcohol (up to once a

Table 1
Wave 1 Weighted Descriptive Statistics for School Connectedness, Health-Related Outcomes, and Background Characteristics, National Longitudinal Study of Adolescent Health

Measures	Mean/ Proportion	S.D. / S.E.	Minimum	Maximum	Unweighted N
Teacher Support	9.28	2.35	1	11	13,334
Social Belonging	9.12	2.60	1	11	13,336
Cigarette Use					
<i>None</i>	.73	.01	0	1	13,369
<i>Occasional</i>	.14	.01	0	1	13,369
<i>Regular</i>	.13	.01	0	1	13,369
Getting Drunk					
<i>Never</i>	.73	.01	0	1	13,400
<i>Occasional</i>	.17	.01	0	1	13,400
<i>Regular</i>	.09	.01	0	1	13,400
Marijuana Use					
<i>None</i>	.87	.01	0	1	13,337
<i>Occasional</i>	.07	.00	0	1	13,337
<i>Regular</i>	.06	.00	0	1	13,337
Suicide					
<i>No Suicidal Ideation</i>	.87	.00	0	1	13,429
<i>Suicidal Ideation</i>	.09	.00	0	1	13,429
<i>Suicide Attempts</i>	.04	.00	0	1	13,429
Ever Had Sex	.33	.02	0	1	13,418
Weapon-Related Violence in Past Year	.23	.01	0	1	13,472
Parent Connectedness	13.58	3.86	1	18	13,373
History of Family Suicide	.06	.00	0	2	13,416
Depressed Mood	3.00	2.29	1	13	13,541
Female	.50	.00	0	1	13,568
Age	15.04	1.64	11	21	13,559
White	.67	.03	0	1	13,559
African American	.15	.02	0	1	13,559
Hispanic	.12	.02	0	1	13,559
Asian	.04	.01	0	1	13,559
American Indian	.01	.00	0	1	13,559
Other Race/Ethnicity	.01	.00	0	1	13,559
Intact Family Structure	.55	.02	0	1	13,568
Income					
<i>under \$10,000</i>	.10	0.01	0	1	13,568
<i>\$11,000 - \$20,000</i>	.14	0.01	0	1	13,568
<i>\$21,000 - \$40,000</i>	.34	0.01	0	1	13,568
<i>\$41,000 - \$60,000</i>	.25	0.01	0	1	13,568
<i>\$61,000 - \$80,000</i>	.10	0.01	0	1	13,568
<i>more than \$80,000</i>	.07	0.01	0	1	13,568
Missing on Income	.21	0.01	0	1	13,568

month or less) and 9% reporting getting drunk regularly, defined as two or three times a month or more. Thirteen percent used marijuana in the previous 30 days, and about a quarter (23%) had engaged in weapon-related violence at least once in the previous year. A third of the sample had first sexual intercourse prior to the wave 1 interview. Sadly, 9% of the respondents seriously considered suicide in the previous year and 4% attempted suicide.

Table 2 shows the patterns of transition into and out of levels of involvement in health-risk behaviors between waves 1 and 2. The cells report the proportion of adolescents in a given behavioral category at wave 1 that are in each behavior category at wave 2. For example, the first row in the table shows that 81% of the respondents who had never smoked at wave 1 were also nonsmokers at wave 2. In addition, 15% of nonsmokers at wave 1 transitioned into smoking occasionally, and 5% transitioned into smoking regularly at the wave 2 interview.

Overall, Table 2 shows great stability over time among those adolescents who reported no involvement in a risk behavior. Of those who did not engage in a risk behavior at wave 1, over 80% reported not engaging in that behavior one year later. The most change over time is seen for adolescents who reported occasional or experimental participation in a behavior at wave 1. Among occasional

substance users in wave 1, just 30% still smoked occasionally, 40% still got drunk occasionally, and 25% still used marijuana occasionally at wave 2. A third of adolescents who occasionally used alcohol and cigarettes at wave 1 reported no use at wave 2. Fully half of adolescents who occasionally used marijuana in the 30 days prior to the wave 1 interview reported no use at wave 2. The cessation of occasional use reflects the experimental nature of health-risk behaviors in adolescence. Regular substance use is more stable over time. Nearly 80% of adolescents who smoked regularly at wave 1 also smoked regularly at wave 2, and half of the adolescents who regularly got drunk or used marijuana also did so a year later.

The respondents, as a group, reported less violence at wave 2 than at wave 1 (13% compared to 23%, respectively). Just 6% of adolescents who did not report violence within the past year at wave 1 reported a violent incident at wave 2. In contrast, 65% of adolescents who reported violence at wave 1 reported no violence in the past year at wave 2.

Eighty-six percent of the adolescents who did not have sexual intercourse prior to wave 1 did not initiate sexual intercourse between wave 1 and wave 2. Among adolescents who did initiate sexual intercourse between wave 1 and 2 (not shown in table), 67% used a condom. Finally, a

Table 2
Proportion of Respondents Who Transition Into and Out of Risk Behaviors
Between Wave 1 and Wave 2: National Longitudinal Study of Adolescent Health

Wave 1	Wave 2			Row Total	Unweighted N
	Never/ No	Occasional/ Yes	Regular		
Cigarette Use					
Never	.81	.15	.05	1.0	9,910
Occasional	.33	.38	.29	1.0	1,780
Regular	.11	.11	.79	1.0	1,539
Getting Drunk					
Never	.83	.12	.05	1.0	9,776
Occasional	.35	.43	.22	1.0	2,276
Regular	.23	.26	.52	1.0	1,221
Marijuana Use					
Never	.90	.07	.04	1.0	11,374
Occasional	.50	.24	.26	1.0	894
Regular	.33	.15	.53	1.0	794
Violent Behaviors					
No Violence	.94	.06	-	1.0	10,337
Yes Violence	.65	.35	-	1.0	3,099
Sexual Behaviors					
	No Sex	First Sex with condom	First Sex w/o condom		
Never Had Sex	.87	.08	.05	1.0	7,972
Suicide					
	No Ideation	Ideation	Attempt		
No Ideation	.93	.05	.02	1.0	11,607
Ideation	.64	.26	.10	1.0	1,249
Attempts	.51	.19	.30	1.0	510

startling 30% of students who attempted suicide in the year prior to wave 1 made at least one more attempt by wave 2.

Multivariate Results

The results from the multivariate models examining the relationship between school connectedness and the transi-

Table 3
Weighted Relative Risk Ratios from Multinomial Logit Regression of School Connection
on Substance Use: Add Health Wave 2 Respondents

Transition from Wave 1 to Wave 2	Teacher Support					Social Belonging			
	Model 1			Model 3a		Model 2		Model 3 b	
	N	RRR	s.e.	RRR	s.e.	RRR	s.e.	RRR	s.e.
Panel A: Frequency of Cigarette Use in Past Month									
None to Occasional	9,566	.93***	.02	.91***	.02	1.02	.01	1.05***	.02
None to Regular		.84***	.03	.84***	.03	.96	.03	1.02	.03
F-test		20.42***		21.66***		2.16		5.4**	
Occasional to None	1,699	1.01	.03	1.02	.04	.98	.04	.97	.04
Occasional to Regular		.92*	.04	.92*	.04	.96	.03	.98	.04
F-test		4.79**		4.66*		0.78		0.25	
Regular to None	1,402	.99	.04	.97	.04	1.03	.04	1.04	.04
Regular to Occasional		1.08	.05	1.05	.05	1.08	.05	1.06	.05
F-test		1.48		0.87		1.67		1.24	
Panel B: Frequency of Getting Drunk in Past Year									
None to Occasional	9,410	.93***	.02	.90***	.02	1.03	.02	1.07**	.02
None to Regular		.86***	.02	.84***	.03	1.01	.03	1.07*	.03
F-test		17.13****		22.49***		1.50		6.81**	
Occasional to None	2,171	1.01	.03	1.01	.03	1.01	.03	1.01	.03
Occasional to Regular		.95	.04	.94	.04	1.02	.03	1.04	.03
F-test		1.26		1.81		0.14		0.84	
Regular to None	1,123	1.00	.04	1.00	.05	1.00	.03	1.00	.03
Regular to Occasional		.98	.04	1.01	.05	.95	.03	.94	.04
F-test		0.07		0.03		1.34		1.17	
Panel C: Frequency of Marijuana Use in Past Month									
None to Occasional	10,944	.87***	.02	.87***	.02	.95*	.02	1.00	.02
None to Regular		.88***	.03	.87***	.03	.98	.02	1.02	.03
F-test		24.48***		23.46***		2.1		.030	
Occasional to None	846	1.08	.06	1.10	.06	.98	.05	.96	.05
Occasional to Regular		1.00	.06	.96	.06	1.08	.06	1.10	.07
F-test		2.05		3.88*		2.46		3.93*	
Regular to None	725	.95	.06	.94	.06	1.00	.04	1.03	.04
Regular to Occasional		1.02	.08	1.07	.10	.93	.04	.91	.05
F-test		0.55		1.30		1.97		2.64	

* p < .05; ** p < .01; *** p < .001;

All F-tests in the table have 2 degrees of freedom.

All models include controls for parental connectedness, family structure, household income, and adolescent depressed mood, age, gender, and race.

tion into and out of the six health-risk behaviors are shown in Tables 3 and 4. Three models are presented for each risk behavior. Model 1 contains the teacher support measure and the control variables. Model 2 contains the social belonging measure and the control variables. Model 3 contains both school connectedness variables along with the control variables. Because results from Model 3 are presented in two separate columns, the columns are labeled Model 3a and Model 3b.

Each panel of Table 3 contains the results of three separate multinomial logit regressions that model the transition from a given status at wave 1 (eg, nonsmoking) into two alternative statuses at wave 2 (eg, occasional smoking or regular smoking). The table reports relative risk ratios, which represent the risk of transitioning to an alternative status relative to not transitioning for each one-unit change in the school connectedness measure, holding all other variables constant. For example, the first relative risk ratio in Model 1 of Table 3 is the risk of transitioning from no cigarette use at wave 1 to occasional use at wave 2 for each one-unit change in teacher support, relative to remaining a nonsmoker. These relative risk ratios are the association between the school connectedness variables above and beyond the independent effect of all the background characteristics, including parent attachment and academic performance.

Since multinomial logistic regression models simultaneously estimate two coefficients for each independent variable within the model, we report the statistical significance of both the individual relative risk ratios and of the joint hypothesis that both relative risk ratios are equal to one (Wald F-test), as recommended by Hosmer and Lemeshow.²⁶ All Wald tests were adjusted for the complex sampling design.²⁵

We hypothesized that both teacher support and social belonging would be associated with a decreased probability of initiating health-risk behaviors and an increased probability of reduction or cessation, and that social belonging mediates the effect of teacher support on health-risk behavior. Comparing the relative risk ratios in model 1 to those in model 3a shows how the inclusion of social belonging in the model changes the effect of teacher support on adolescent health-risk behaviors. Similarly, comparing model 2 to model 3b shows how the inclusion of teacher support in the model changes the effect of social belonging on adolescent health-risk behaviors. If social belonging mediates teacher support, we would expect to see the association between teacher support and the health-risk behaviors to diminish once social belonging is included in the model. We would also expect the association of social belonging and the outcomes to remain unchanged once teacher support is added to the model. However, as shown in Model 2, social belonging has no effect on initiation or cessation of the health-risk behaviors, with the exception of marijuana use. In some cases, social belonging is a significant risk factor for initiation of health-risk behavior after teacher support is also included in the model.

Cigarette, Alcohol, and Marijuana Use. In both Model 1 and 3a of Table 3, teacher support is a protective factor for the initiation of cigarette smoking. Teacher support is also protective against the escalation from occasional to regular smoking. This suggests that not only might teacher support protect against experimentation with cigarettes, but

it also might protect against an addictive habit among those who have experimented with cigarettes. In model 2, social belonging is not associated with the transition from being a nonsmoker to smoking occasionally, and we find no support in models 3a and 3b that social belonging mediates the protective effect of teacher support. However, in model 3b, which includes both school connectedness variables, social belonging is a risk factor for the transition from nonsmoking to occasional smoking. Students who feel that they are part of school, who feel close to people at school, and who like going to school are more likely to start smoking occasionally, once support from teachers is held constant.

The pattern is the same for alcohol use. Teacher support at wave 1 is associated with a lower probability of transitioning from never getting drunk to both occasional and regular episodes of getting drunk by wave 2. When both connectedness measures are included in the model (Models 3a and 3b), social belonging becomes a risk factor for the initiation of occasional and regular smoking among nonsmokers. Neither school connectedness measure predicts the transition from occasional use to regular use. Likewise, they do not predict a reduction in alcohol use, whether the transition be a decrease in use or quitting altogether. For marijuana use, teacher support and social belonging are protective against transitioning into either occasional or regular use from no marijuana use. However, social belonging is not related to initiating marijuana use once teacher support is included in the model. Teacher support is also protective of transitioning into regular use from no marijuana use.

Suicidality, Sexual Intercourse, and Violence. Table 4 presents the results of models predicting the effect of school connectedness on suicide, first sexual intercourse, and violence. Teacher support protects against suicidal attempts for those students who do not report experiencing suicidal thoughts at wave 1. Teacher support is also protective against the transition to first sexual intercourse, whether protected by condom use or not.

Panel C in Table 4 shows the results of a logistic regression analysis and therefore presents the risk ratios (rather than relative risk ratios) for transitioning into and out of violence between wave 1 and wave 2. Violence is the only outcome for which teacher support is not only protective against initiation of a health-risk behavior but is also associated with cessation of the behavior. When students feel supported by their teachers, they are less likely to engage in weapon-related violence and are also more likely to desist if they have been violent in the past.

Predicted Probabilities. Because relative risk ratios can be difficult to interpret, we follow the recommendation of Hosmer and Lemeshow²⁶ and calculate predicted probabilities from the models containing both school connectedness variables and the full set of control variables. Table 5 presents the predicted percent of the sample that would transition from no participation in the health-risk behavior to various levels of participation for three values of teacher support: the mean, one standard deviation below the mean, and one standard deviation above the mean.

The effect of teacher support on adolescent health-risk behavior is quite large. For example, if all respondents in the sample had a teacher support score that was one standard deviation above the mean, the percent of students who

transitioned from not smoking to occasional smoking would decrease by 15% – from 14% of the sample to 12% – compared to if all students had the mean score of teacher support. For cigarette and alcohol use, it appears that increasing teacher support is more protective against the initiation of regular use than occasional use.

The association between teacher support and the outcomes may be somewhat overstated by these predicted probabilities because there may be unmeasured factors that cause both teacher support and the health-risk behavior outcomes. Moreover, it is unlikely that teacher support could be changed a full standard deviation without the adolescents' scores on other protective factors being changed as well. Nonetheless, even if these predicted probabilities are an upper bound estimate of the association between teacher support and the initiation of health-risk behaviors, they suggest a substantial protective effect.

DISCUSSION

The results of this study show that different dimensions of school connectedness have different effects on the initia-

tion of six health-risk behaviors: cigarette smoking, drinking to the point of getting drunk, marijuana use, suicidal ideation or attempt, first sexual intercourse, and weapon-related violence. Adolescents who perceive that their teachers are fair and care about them – referred to as teacher support – are less likely to initiate any of these six health-risk behaviors. This finding is consistent with previous research showing that when students think their teachers care about them personally and care about their learning, they are more likely to be engaged in school, to do better academically, and to participate in fewer health-risk behaviors.¹²⁻¹⁸ However, our study shows that adolescents who feel part of school and enjoy going to school – referred to as social belonging – are not protected from initiation of any of these health-risk behaviors. Rather, controlling for teacher support reveals a suppressed risk effect of social belonging on two health-risk behaviors: the initiation of occasional smoking and drinking to the point of getting drunk. These findings are not consistent with our hypothesis that teacher support generates a sense of belonging which, in turn, reduces involvement in health-risk behaviors.

Table 4
Weighted Risk and Relative Risk Ratios from the Regression of School Connection on Suicide, Sex, and Violence Transitions: Add Health Wave 2 Respondents

Transition from Wave 1 to Wave 2	Teacher Support					Social Belonging			
	Model 1			Model 3a		Model 2		Model 3 b	
	N	RRR	s.e.	RRR	s.e.	RRR	s.e.	RRR	s.e.
Panel A: Suicidal ideation and Attempts									
None to Ideation	11,117	.96	.03	.95	.03	1.01	.03	1.02	.03
None to Attempt		.90*	.04	.89*	.04	.99	.03	1.03	.04
<i>F-test</i>		3.52*		3.61*		0.08		0.53	
Ideation to None	1,174	1.04	.04	1.02	.05	1.04	.03	1.03	.04
Ideation to Attempt		1.06	.06	1.02	.07	1.08	.06	1.07	.07
<i>F-test</i>		0.66		0.14		1.33		0.84	
Attempt to None	474	.93	.06	.92	.07	1.01	.04	1.03	.06
Attempt to Ideation		.97	.09	.96	.09	1.02	.06	1.03	.09
<i>F-test</i>		0.54		0.56		0.05		0.20	
Panel B: Initiation of Sexual Intercourse									
Never to Sex with Condom	7,794	.88***	.03	.88***	.03	.95	.02	.99	.02
Never to Sex w/o Condom		.91*	.03	.91	.04	.96	.03	.99	.03
<i>F-test</i>		9.25***		7.61***		2.78		0.17	
Panel C: Weapon-Related Violence									
No Violence to Violence	9,922	.90***	.02	.89***	.02	.99	.02	1.04	.02
Violence to No Violence	2,933	1.07**	.03	1.07**	.03	1.03	.02	1.01	.02

* $p < .05$; ** $p < .01$; *** $p < .001$;

All *F*-tests in the table have 2 degrees of freedom.

All models include controls for parental connectedness, family structure, household income, and adolescent depressed mood, age, gender, and race.

The degree to which school connectedness protects against or promotes the initiation of health-risk behavior might depend on the type of connection adolescents have to school. Adolescents can develop conventional or unconventional connection to school.³ Conventional connectedness involves connections to individuals who engage in prosocial behaviors and who regulate prosocial behavior in others. Unconventional connectedness, in contrast, involves connection to individuals who engage in behaviors that do not conform to prosocial norms. Thus, an adolescent's school connectedness will be conventional or unconventional depending on to whom an adolescent develops a connection. The type of connectedness will determine the direction of influence of school connectedness on health-risk behaviors.³ Conventional connectedness protects against the initiation of health-risk behaviors whereas unconventional connectedness is likely to promote the initiation of health-risk behaviors.²²

Adolescents develop connections at school to both peers and adults, such as teachers. Connectedness to teachers is presumed to be conventional because teachers reinforce participation in behaviors that are sanctioned by the school. Connection to peers, on the other hand, can be conventional or unconventional depending on the norms within the peer group. Unconventional connectedness to peers is likely to develop when "youths themselves dictate the norms, activities, and structure that govern what youths do."^{3 (p 3)} Although our measure of social belonging does not specifically refer to peers, we believe that once the shared variance with teacher support is removed, social belonging is tapping primarily unconventional connectedness to peers. Peer norms differ the most from norms adults hold for adolescents for two behaviors: smoking and alcohol use. For example, whereas most adults prefer that adolescents

abstain from substance use, by 12th grade, 62% of students report having gotten drunk and 57% report having tried cigarettes.²⁷ If our measure of social belonging is measuring unconventional connectedness to peers after controlling for teacher support, then social belonging would become a risk factor for the initiation of cigarette and alcohol use. It is notable that connection to peers is not a risk factor for the more serious health-risk behaviors such as regular smoking, marijuana use, violence, and suicidality.

Teacher support is protective against the initiation of health-risk behaviors, but has little effect on the reduction or cessation of health-risk behaviors once initiated, with the exception of violence. Since the violence measure reflects participation in a single violent incident at any point in the past year, it is possible that the respondents with higher teacher support ceased violence long before the wave 1 measurement of teacher support. Teacher support might have less influence on the reduction or cessation of health-risk behaviors than on their initiation because a student's involvement in risk behaviors reflects their willingness to invest in unconventional norms, even if they continue to feel supported by teachers and staff.²⁸ Engagement, the third dimension of connectedness, is the reciprocation by the students of teacher support. It is the extent to which students are invested in and committed to their relationships with teachers. Engagement might be the component of connectedness most important to the reduction of risk behaviors. Stanton-Salazar²⁸ describes how students who are committed to a personal relationship with their teachers are more likely to both seek out and respond to support from teachers. Had we been able to measure engagement – a third dimension of school connectedness – we might have found it to be associated with the reduction or cessation of health-risk behaviors.

Table 5
**Weighted Predicted Percent of the Sample Who Transition Into Risk Behaviors
for Three Values of Teacher Support: The Mean, One S.D. Above the Mean, and One S.D. Below the Mean,
Add Health Wave 2 Respondents**

Transition from Wave 1 to Wave 2	Unweighted N	One S.D. Above	Mean	One S.D. Below	% Protection Increase	% Risk Increase
Cigarette Use						
None to Occasional	9,566	12.2	14.3	16.5	14.7	15.4
None to Regular		2.8	3.8	5.3	26.3	39.5
Getting Drunk						
None to Occasional	9,410	9.5	11.3	13.4	15.9	18.6
None to Regular		3.2	4.5	6.2	28.9	37.8
Marijuana Use						
None to Occasional	10,994	4.7	6.3	8.3	25.4	31.7
None to Regular		2.6	3.4	4.4	23.5	29.4
Sexual Behaviors						
Never to Sex with Condom	8,429	7.5	9.2	11.3	18.5	22.8
Never to Sex w/o Condom		9.8	11.0	12.2	10.9	10.9
Violent Behaviors						
No Violence to Violence	9,922	4.7	6.0	7.5	21.7	25.0
Suicide						
None to Ideation	11,117	4.5	5.0	5.5	10.0	10.0
None to Attempt		1.3	1.7	2.2	24.5	29.4

Three limitations of this study should be noted. First, the connectedness measures are limited in their ability to measure additional dimensions of school connectedness, such as engagement. A second measurement limitation concerns our ability to accurately measure initiation of health-risk behaviors. The transition from no participation in these health-risk behaviors to involvement may not actually represent initiation. Third, the analysis, although longitudinal, is by no means causal. We could be observing a selection effect rather than a protective effect for teacher support. Despite these limitations, this paper has several strengths. Distinguishing between two dimensions of school connectedness contributes to the conceptual and operational refinement of school connectedness. Moreover, distinguishing between the initiation and reduction of health-risk behaviors, which is not typically done in research on adolescent health-risk behavior, reveals important information about the mechanisms through which school connectedness promotes health.

Separating school connectedness into two separate dimensions also contributes to recommendations regarding the translation of research into social policy. Our findings suggest that conventional connectedness to teachers can counterbalance negative influences of bonding to peers with non-conventional behavioral norms. Through caring about their students, treating them fairly and actively engaging them in learning, teachers can delay the initiation of health-risk behaviors. Our findings also suggest that these same actions may not promote cessation of health-risk behaviors once they have been initiated. This suggests that middle schools are a particularly important target for promoting supportive teacher relationships, because most middle schools students have not yet experimented with health-risk behaviors. The transition from elementary school to middle school has been documented as a time in which students perceive less caring relationships with teachers.²⁹

A challenge for future research and intervention work is to better understand the aspects of the student-teacher relationship that promote reduction of health-risk behaviors. Since our research suggests each dimension of school connectedness might have a different influence on adolescent outcomes, future research should distinguish between dimensions of school connectedness as they relate to teachers, peers, and learning. Additionally, an important unanswered question is whether teacher support is equally protective for all students as this main effects model assumes. Another important question is whether support from teachers can compensate for the lack of a close parent-child relationship or whether a connection with parents is a prerequisite to fostering connection with teachers. ■

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The Interface of School Climate and School Connectedness and Relationships with Aggression and Victimization

Dorian Wilson

Children's experiences in school are fundamental to their successful transition into adulthood. In school, children negotiate and renegotiate their relationships, self-image, and independence. They cultivate interpersonal skills, discover and refine strengths, and struggle with vulnerabilities. As such, schools must provide a safe environment for children to develop academically, relationally, emotionally, and behaviorally.

Various studies have examined how the educational and social climate of a school can enhance or impair student development and achievement. Researchers have discovered common characteristics in schools where students report a positive school climate. School characteristics include an emphasis on academic achievement, positive relationships among students and teachers, respect for all members of the school community, fair and consistent discipline policies, attention to safety issues, and family and community involvement.¹⁻³ Concurrently, a nearly distinct body of research has examined the correlates and effects of student connectedness to school. The research revealed consistent positive developmental patterns among students with a high degree of school connectedness, including improved academic achievement, reduced delinquency rates, and decreased rates of health-compromising behavior.⁴⁻⁷

How do school connectedness and school climate work together to influence students? Can the relationship between connectedness and climate reveal information about the interaction of social context and the individual? School connectedness generally includes the sense of attachment and commitment a student feels as a result of perceived caring from teachers and peers.⁸ School attachment is often one of several indices included when measuring school climate. Further, comparisons of research on climate and connectedness reveal coinciding external associations and dimensions of school climate highly correlated with connectedness.

This paper summarizes analyses of data from the Safe Communities-Safe Schools initiative, comparing effects of connectedness and climate on measures of aggression and victimization. Subsequently, findings will be assessed within the research on school climate and connectedness.

BACKGROUND OF THE SAFE COMMUNITIES-SAFE SCHOOLS INITIATIVE

In fall 1999, the Center for the Study and Prevention of Violence (CSPV) at the University of Colorado at Boulder, created the Safe Communities-Safe Schools Initiative (SCSS). After the tragedy at Columbine High School in Littleton, Colo., in which two students killed 12 school-

mates and one teacher, Colorado professional education associations sought to create a safe school model to decrease schools' vulnerability to future violent attacks, along with reducing student victimization. In collaboration with state education associations, the Colorado Attorney General's Office, and the Colorado Trust, the Center created the SCSS model for school violence prevention. The model, based in part on Comer's School Development model, focuses on creating an overall school climate where students feel safe and valued by adults and each other, and supported in their learning and development.⁹ The Comer model fosters prosocial bonds among students, teachers, and parents. Similarly, the SCSS model includes a universal intervention aimed at improving school climate by developing positive relationships among all school community members. The specific intervention program appropriate for each school is determined by a baseline assessment and, thereafter, evaluated through annual assessments. The needs of one school may call for life skills training for students, while a bullying prevention program may best serve another school. The SCSS model emphasizes the need to implement appropriate programs that have been proven effective through rigorous evaluation. Though not discussed in this paper, the SCSS model also includes a prevention component for at-risk students and a crisis response component.

Beginning in fall 2000, the SCSS model was implemented in 32 schools; five schools served as comparisons. Comparison sites were matched based on comparability of urban or rural location, school size, percent of minority students, and socioeconomic characteristics of the area served by the school.

METHODS

In this paper, nine middle schools and 10 high schools are included in the analyses (13 elementary schools were excluded). As part of the SCSS model's annual schoolwide assessment, a sample of students was surveyed at each school. Baseline surveys were administered during the 2000-2001 school year to 1,177 middle school students and 1,117 high school students. The first follow-up survey, conducted in 2001-2002, was administered to 1,357 middle school students and 970 high school students. These findings represent cross-sectional analyses of the 2001-2002 middle school and high school aggregate of 2,327 students.

The SCSS surveys included questions related to student perceptions of school discipline policies, relationships with teachers and peers, physical condition of campus, presence of gangs, attitudes toward school, victimization and perpetration of bullying, attitudes toward use of aggression, self-reported academic performance, and problem behavior. The survey was intended to gauge school climate, the prevalence of interpersonal physical and relational aggression among students, and risk and protective factors for delinquency.

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Measurement of Aggression and Victimization

Effects of school climate and school connectedness on two measures of perpetration (physical aggression and relational aggression), and one victimization were analyzed. The Perpetration of Physical Aggression scale included six items, and the Perpetration of Relational Aggression scale included five items (scale ranges = 0 to 6 and 0 to 5, respectively, with a higher score reflecting more aggression). Items in both scales indicated a self-reported aggressive behavior. Seven self-report indicators comprised a scale measuring Victim of Aggression (range = 0 to 7, with a higher score indicating more victimization). Each of the three aggression scales is a sum, rather than a mean of items, because the items are dichotomous (yes or no).

Measurement of School Climate and Connectedness

The SCSS survey included seven scales commonly thought of as dimensions of school climate: Feelings and Attitudes Toward School, Knowledge and Fairness of Discipline Policies, Student-Teacher Relationships, Student-Peer Relationships, Respect for Authority, Presence of Gangs, and Condition of Campus (scale ranges = 1 to 4, with a higher score indicating more of the specific characteristic measured). The Student-Peer Relationships scale was not reliable in the aggregate, and was dropped.

Factor analysis indicated four of the remaining scales loaded (except Presence of Gangs and Condition of Campus.) on a single-component solution (Eigen value = 2.867, % of variance 47.78). The four scales were summed to create a single scale measuring student's Perception of School Climate (Cronbach's alpha = .8067, scale range = 1 to 16, with 16 indicating optimal school climate). Perception of School Climate values were averaged for each school. The within-school mean of the Perception of School Climate was assigned to all students in each school thereby creating a school level measure of school climate.

The School Connectedness scale represents an average of seven items: 1) I like school. 2) I look forward to going to school. 3) My teachers tell me when I do a good job. 4) My teachers listen when I have something to say. 5) I have a teacher who really cares about me. 6) All students who break the rules at this school are treated the same, no matter who they are. 7) When someone breaks the rules, teachers and administrators always take appropriate action (scale range = 1 to 4, 4 = optimal connectedness, Cronbach's alpha = .7358). Some items used in measuring school connectedness also were used in subscales that comprised the measure of school climate. This would be problematic if the individual subscales or the individual-level Perceptions of School Climate scale were included in the analyses. However, given the manner in which the items

Table 1
Comparison of Regression Models for Perpetration of Physical Aggression

	Model #1 ¹			Model #2 ²		
	b	beta	Significance	b	beta	Significance
% Non-White Students	.982	.133	.000	.978	.123	.00
School Size	.000	-.093	.000	.000	-.106	.0000
School Performance Score	.012	.111	.000	.005	.047	.024
School Connectedness				-.881	-.344	.000

¹ - $R^2 = 0.3\%$; ² - $R^2 = 1.4\%$

² - Adds school connectedness to Model #1 of demographic variables.
Change in R^2 from Model #1 to Model #2 = 1.14%; $p = .000$; $N = 2,327$

Table 2
Comparison of Regression Models for Perpetration of Relational Aggression

	Model #1 ¹			Model #2 ²			Model #3 ³		
	b	beta	Significance	b	beta	Significance	b	beta	Significance
% Non-White Students	.357	.054	.017	.286	.043	.058	.372	.056	.010
School Size	-3.89E-05	-.012	.602	-9.722E-05	-.030	.209	-7.03981E-05	-.023	.305
School Performance Score	.003	.031	.159	-.003	-.034	.281	-.002	-.017	.434
School Climate	X	X	X	-.181	-.090	.003	X	X	X
School Connectedness	X	X	X	X	X	X	-.600	-.263	.000

* Model #3 adds school connectedness to Model #1.

¹ - $R^2 = 0.3\%$

² - $R^2 = 0.7\%$; change in R^2 from Model #1 0.4%, $p = .003$.

³ - $R^2 = 7.0\%$; change in R^2 from model #1 6.7%, $p = .000$.

were used in the measure of school climate, having been averaged and aggregated to the school level, the overlap does not create a serious methodological issue.

Analyses also include three school-level demographic variables: percent of non-White students in the school, school size, and a school performance score (a measure of the academic environment of each school assigned by the Colorado Department of Education).

Statistical Analysis

Three regression models estimated contribution of each independent variable in predicting aggression and victimization while controlling for the effects of three school-level demographic variables. Three regression models were conducted for each dependent variable. Model one used only demographic variables as independent predictors. Model two in each comparison included the school climate scale in addition to demographic variables. Model three in the comparisons of regression included the school connectedness scale with demographic variables.

RESULTS

Relationship Between Aggressive Victimization with School Climate/Connectedness

The first set of tables compares the relationship of Model 1 with Model 2. The model of physical aggression on the demographic variables and school climate is not significant and is not presented here. Neither of the two models presented explains a substantial amount of the variability in physical aggression ($R^2 = .3\%$ and 1.4% , respectively). However, the 1.14% change in the explained variance from Model 1 to Model 2, though small, is statistically significant ($p = .000$).

In both models predicting physical aggression, each independent variable showed significant predictive ability. School size, while statistically significant, had negligible explanatory power ($b = .000$). School performance scores indicated a significant and low predictive ability ($b = .012$ and $.005$, respectively). Percent of minority students in a school was found to have a strong and significant relationship to aggression that varied minimally from Model 1 ($b = .982$, $p = .000$) to Model 2 ($b = .978$, $p = .000$). School connectedness negatively related to physical aggression,

and of all independent variables, demonstrated the strongest predictive ability ($b = -.344$ in Model 2; $p = .000$).

Perpetration of Relational Aggression. The variance in relational aggression explained by the three demographic variables alone is not significant ($R^2 = 0.3\%$, $p = .077$). When school climate was added to the demographic variables (Model 2), the model produces a significant, albeit minute, increase of 0.4% in the explained variance of relational aggression ($p = .013$). By comparison, the addition of school connectedness to the three demographic variables (Model 3) substantially improved the variance explained by 6.7% ($p = .000$). Overall, neither the model including school climate nor the model including school connectedness offered a significant amount of explained variability in the perpetration of relational aggression (change in R -squared = $.7\%$ and 7% , respectively).

Neither school size nor school performance scores significantly predicted relational aggression. Percent of minority students, however, again, demonstrated a significant, moderate predictive ability in the model of demographic variables alone ($b = .357$, $p = .02$) and in the model including school connectedness ($b = .372$, $p = .01$). In Model 2, school climate is inversely related to relational aggression ($b = -.181$, $p = .003$), indicating that as climate improves relational aggression decreases. Likewise, in Model 3, as connectedness improves, relational aggression decreases ($b = -.600$, $p = .000$).

Victimization and School Climate. Table 3 explores the relationship between victimization on school climate. As with previous analyses, the first model, included only the demographic variables and found all three variables were significant the percent of minority students ($b = .955$, $p = .000$), school size ($b = -.001$, $p = .000$), and school performance score ($b = -.007$, $p = .033$). When school climate was included in Model 2, school performance was no longer significant. With the addition of school climate, a small but significant change occurred in R -squared of 0.3% ($p = .013$). Contrary to expected outcomes, however, the relationship was positive ($b = .237$, $p = .013$) suggesting that victimization continues to increase as school climate improves. In Model 2, percent of non-White students and school size contributed significant predictive ability ($b = 1.043$, $p = .000$ and $b = -.001$, $p = .000$).

Table 3
Comparison of Regression Models for Victimization

	Model #1 ¹			Model #2 ²			Model #3 ³		
	b	beta	Significance	b	beta	Significance	b	beta	Significance
% Non-White Students	.971	.091	.000	1.043	.098	.000	.971	.091	.000
School Size	-.001	-.160	.000	-.001	-.142	.000	-.001	-.165	.000
School Performance Score	-.007	-.047	.032	.001	.006	.846	-.012	-.076	.001
School Climate	X	X	X	.237	.073	.013	X	X	X
School Connectedness	X	X	X	X	X	X	-.576	-.158	.000

¹ - $R^2 = 0.3\%$

² - $R^2 = 0.7\%$; change in R^2 from Model #1 0.4% , $p = .003$.

³ - $R^2 = 7.0\%$; change in R^2 from model #1 6.7% , $p = .000$.

In Model 3, school connectedness was related inversely to victimization, and the change created by its addition to the demographic variables produced a small but significant change of 2.4% ($p = .000$; school connectedness $b = -.576$, $p = .000$). All indicator variables in Model 3 were significantly predictive of victimization ($p = .001$).

Comparisons of the three models predicting physical aggression, relational aggression and victimization, suggest that the contributions of school climate and school connectedness are partially independent. However, school connectedness demonstrated a stronger and more consistent contribution than climate to reducing both aggression and victimization.

How School Climate and Connectedness Interact

A second set of analyses offered a preliminary investigation of the ways school climate and connectedness work in tandem in predicting levels of aggression and victimization among students. For these analyses, SCSS schools were assigned a value for school climate, indicating a positive climate, (above the mean for all schools), or negative climate (equal to or below the mean for all schools). In addition, students in each school were assigned a value for their school connectedness: high connectedness was above the mean for all students in the sample, while low connectedness was equal to or below the connectedness mean of students in the entire SCSS sample. Finally, perpetration of physical aggression, perpetration of relational aggression, and victimization were dichotomized into of high or low values based on where responses fell in relationship to the mean (Table 4).

In schools with positive climates, students with low connectedness were more aggressive than their highly connected counterparts. A significant number of low-connected students (46%) in positive school climates had high rates of physical aggression. Similarly, a significantly high percentage of these students (59%) demonstrated high rates of relational aggression. Conversely, among highly connected students in positive climate schools, only 20% indicated high levels of physical aggression, and only 40% indicated high levels of relational aggression. These results are significantly lower than would be expected if no relationship existed among connectedness and aggression.

In schools with negative climates, low-connected students were significantly more likely to demonstrate high levels of aggression; 39% of low-connected students indi-

cated high levels of physical aggression, and 56% indicated high levels of relational aggression. Among their highly connected schoolmates, significantly low numbers demonstrated high levels of aggression, despite a negative climate (physical aggression = 17% and relational aggression = 46%). Thus, regardless of climate, strong connectedness yields protective qualities. Distributions for physical aggression and relational aggression in both positive and negative school climates were statistically significant (all p values $< .002$). However, phi statistics for distribution within each climate indicated a weak relationship between connectedness and physical aggression (positive climate $\phi = -.273$, $p = .000$; negative climate $\phi = -.249$, $p = .000$) and connectedness and relational aggression (positive climate $\phi = -.181$, $p = .000$; negative climate $\phi = -.100$, $p = .000$).

Highly connected students, in positive and negative climates, were more likely to experience low levels of victimization. In positive school climates, 64% of highly connected students indicated low levels of victimization. In negative climates, 73% of highly connected students experienced low levels of victimization. These represent significantly higher proportions than would be expected if no relationship among connectedness, climate, and aggression existed. Although chi square statistics for distributions were significant ($p < .001$ for positive and negative climates), the relationship between connectedness and victimization in both types of climate was weak (positive climate $\phi = -.136$, $p = .000$; negative climate $\phi = -.103$, $p < .001$).

In these analyses, the distribution of students suggests strong school connectedness has a protective effect independent of school climate. Although the relationship between connectedness and aggression or victimization was not strong, these results indicate highly connected students, in both positive and negative school climates, are less likely to be perpetrators and less likely to be victims when compared to their schoolmates who experience low connectedness.

Do Differences in School Climate Alter School Connectedness?

The first two sets of analyses indicate a student's connectedness to school is predictive of aggression and victimization beyond the influence of the overall school climate. However, these analyses do not fully account for the interactive relationship between climate and connected-

Table 4
Relationships Between School Connectedness and School Climate
with Physical and Relational Aggression

	Positive Climate		Negative Climate		Positive Climate		Negative Climate	
	Perpetration of Physical Aggression				Perpetration of Relational Aggression			
School Connectedness	Low	High	Low	High	Low	High	Low	High
Low	54%	46%	61%	39%	42%	59%	45%	56%
High	80%	20%	84%	17%	60%	40%	55%	46%
	chi = 60.596, p = .000 phi = -.249, p = .000		chi = 92.547, p = .000 phi = -.273, p = .000		chi = 9.696, p < .002 phi = -.100, p < .002		chi = 40.151, p = .000 phi = -.181, p = .000	

ness. The final set of analyses determined if variations in school climate affect the protective influence of school connectedness on aggression and victimization: Does school connectedness have a protective effect beyond the climate in which it exists?

Intraclass correlations (ICC) determined if greater variation occurred among the 19 schools in the sample or within each school. Perpetration of Relational Aggression (ICC = .011, S.E. = .007) and Victimization (ICC = .05, S.E. = .022) (but not physical aggression) were significantly correlated with schools.

First, two dummy variables were created for school climate. In the first, one equals a negative school climate, (the lower one-third of the sample distribution of school climate), and zero equals an average or better climate. In the second dummy variable, one indicates a positive school climate (the upper one-third of the school climate distribution), and zero equals an average or poorer climate. Schools were categorized by climate, which was positive, average, or negative. Next, the school connectedness variable was centered using its mean to create a constant value representing the average student in terms of connectedness (mean = 2.84). Finally, two interaction terms were created for connectedness and climate, in which the centered connectedness variable was multiplied by each dummy climate variable.

Regression analyses were conducted with the three dependent variables: Perpetration of Physical Aggression, Perpetration of Relational Aggression, and Victimization. Independent variables included the school connectedness variable, the climate variables described previously, and the two interaction terms. The three school demographic variables, percent of minority students, size of school, and school performance scores, also were entered (Table 5).

In the regression models, the constant is an estimate of the dependent variables, aggression or victimization, indicated by a student in a school in a moderate climate, when all other independent variables are equal to zero. Results

Table 5
Perpetration of Physical Aggression
on School Connectedness

	b	beta	Significance
(Constant)	.967		.000
Average	-.874	-.347	.000
Connectedness			
Positive	1.304	.385	.002
School Climate			
Dummy Variable			
Negative	-.154	-.050	.667
School Climate			
Dummy Variable			
Connectedness*	-.301	-.279	.028
Positive Climate			
Connectedness*	.070	.064	.579
Negative Climate			
% Minority	.007	.064	.005
School Size	-5.42E-05	-.013	.571

* R squared = 14.6%, $p = .001$

indicated a student with average connectedness attending a school with a moderate climate would be less likely to be physically aggressive controlling for all other independent variables ($b = -.874$, $p = .001$) (Table 5). However, moving the same student with average connectedness from a moderate climate to a positive climate substantially increased rather than decreased the likelihood of physical aggression, as indicated by a relatively large slope of 1.304 ($p = .002$). Percent of minority students in a school was the only other variable that significantly predicted physical aggression by a student in a school with a moderate climate and the effect was slight ($b = .007$, $p = .005$). The R-squared indicated that in combination these two variables explain 15% of the variance in physical aggression. ($p = .001$).

The measure of average connectedness was the only variable that contributed to predicting relational aggression (Table 6). The effect of average connectedness decreased

Table 6
Perpetration of Relational Aggression
on School Connectedness

	b	beta	Significance
(Constant)	1.515		.000
Average	-.607	-.271	.000
Connectedness			
Good School Climate	.602	.197	.119
Dummy Variable			
Bad School Climate	-.261	-.095	.431
Dummy Variable			
Connectedness*	-.163	-.167	.202
Good Climate			
Connectedness*	.123	.125	.293
Bad Climate			
% Minority	-.001	-.014	.562
School Size	2.40E-05	.006	.789

* R squared = 7%, $p = .001$

Table 7
Victimization on School Connectedness

	b	beta	Significance
(Constant)	2.389		.000
Average	-.684	-.191	.000
Connectedness			
Good School Climate	.423	.087	.498
Dummy Variable			
Bad School Climate	-.347	-.079	.517
Dummy Variable			
Connectedness*	.047	.030	.821
Good Climate			
Connectedness*	.109	.070	.561
Bad Climate			
% Minority	-.009	-.061	.010
School Size	.000	-.084	.001

* R squared = 4%, $p = .001$

the likelihood of relational aggression when the effects of all other independent variables are equal to zero ($b = -.607$, $p = .001$). The full model accounted for 7% of the explained variance.

In the final regression analysis, the full model predicted only 4% of the explained variance. Average connectedness decreased a student's likelihood of being victimized in a school with a moderate climate when other factors were controlled. Both percent of minority students and school size significantly contributed to the prediction of victimization, however, the effects of both were extremely small ($b = -.009$, $p = .01$ and $b = .001$, $p = .001$, respectively).

In summary, climate and connectedness independently predicted physical aggression (Tables 5-7). These results suggest one cannot assume that as school climate improves aggression or victimization will decline. Given the small R-squares, neither climate nor connectedness alone or in combination with the demographic factors (school size and percent of minority students) explains much of the victimization or the physical or relational aggression experienced by students. Clearly, other factors are important behavioral influences.

DISCUSSION

Previous research suggests student perceptions and experiences of school climate affect academic, emotional, and behavioral development. In schools with warm and welcoming positive climates, and where students feel safe from harm and humiliation, students experience greater attachment and commitment.¹⁰ School climate, positive or negative, affects their sense of safety and risk for delinquency.¹ Furthermore, a negative school climate increases risks for serious violent offending.¹¹

Often the informal social norms that exist in the school social context exacerbate behavior problems, such as bullying and victimization.^{1,12-14} In research with a sample of 2,200 boys from 87 different high schools, Felson and colleagues found that individual schools had unique group cultures where approval for use of aggression was collectively determined.¹⁵ In the Felson et al study,¹⁵ the degree to which each school's culture condoned aggression varied, and was inversely correlated with the degree to which students valued academic achievement. The values and attitudes particular to a school's climate can support or discourage problematic behavior or pro-social behavior.¹⁶

Turning to school connectedness, one defines it as the degree to which a student experiences a sense of caring and closeness to teachers and the overall school environment.⁷ The National Longitudinal Study of Adolescent Health (Add Health)⁷ as well as other surveys^{7,17} measured school connectedness by asking students to respond to statements such as: 1) I feel close to people at this school; 2) I am happy to be at this school; 3) I feel like I am a part of this school; 4) The teachers at this school treat students fairly; and 5) I feel safe in my school. Each statement reflects an important and unique dimension of connectedness and social bonding.

In a study examining social factors that predict delinquency, Erikson and colleagues enumerated the process through which social bonds reduce delinquency.¹⁸ Though the term connectedness was not used in that study, connectedness is closely akin to social bonding. Among the types of bonds studied, a strong commitment to education signifi-

cantly decreased adolescent delinquent behavior. Path analysis revealed educational commitment works indirectly through two intermediary variables, namely decreasing associations with delinquent peers and decreasing susceptibility to negative influences. The effects of the two mediating variables support differential association perspectives and social control perspectives, respectively, in explaining behavior and reducing delinquency. In addition, analysis demonstrated that teacher attachment also has a small but direct effect on delinquency reduction.

School connectedness or particular dimensions of it have been shown to effect academic achievement. For example, high school drop outs report not having a strong interest or sense of belonging in school.^{4,19} When asked why they left school, one-third cited not liking school.^{4,19} Poor relationships with teachers was another common reason.¹⁹ Both factors are associated with or thought of as dimensions of school connectedness. Weak connectedness also was associated with increased health risks that effectively detract from students' ability to focus on learning and to optimize achievement.⁵

Finn and Rock identified factors that predict academic success and resiliency for students at risk for school dropout or poor performance.²⁰ According to Finn and Rock, preparedness for and participation in class, avoidance of disruptive behavior, attendance, and timeliness predicted academic success. These behavioral indicators are also measures of school connectedness. Academically at-risk students who actively engaged in school performed far better academically than their non-engaged peers controlling for other factors such as self-esteem, self-efficacy, and family context. Finn and Rock suggested future studies endeavor to understand the mechanisms that foster academic engagement behaviors, specifically supportive teachers and school and classroom organization, factors that impact students' connectedness.

From analysis of the Add Health Study, Blum and colleagues were able to specify school level characteristics that influence school connectedness,⁵ which were corroborated later by Hawkins and colleagues.²¹ They found that school size affects students' connectedness. Students in schools with enrollments between 300-900 students were more likely to feel connected to school and to each other than students in larger schools. Though classroom size has no effect, students who report being in organized and well-managed classrooms where they feel supported and respected, indicated a greater degree of school connectedness.²² Conversely, students in schools that exercise overly strict rules and harsh discipline policies generally experience lower connectedness.

Social networks also influence connectedness. The larger a student's network of friends, the stronger his/her connection will be to school. Racially integrated networks also positively affect connectedness. Students who report having friends of different races exhibit stronger connectedness. Ironically, students in more highly racially integrated schools generally indicate fewer racially integrated social networks. Finally, research has determined no association between school connectedness and typical demographic variables, such as race, age, and family.

Many school-level variables that affect connectedness are associated with school climate or are often considered dimensions of climate and included in its measurement. As

such, in schools where students express a strong sense of connectedness, they generally report a positive school climate.⁵ This is not to say that all students in schools with a positive climate will feel connected, or that a positive climate is an absolute precondition to connectedness. While school climate appears to be an antecedent of school connectedness, prior to the present analysis there has been very little research exploring this relationship.

CONCLUSIONS

This analysis demonstrated that even a positive school climate does not always reduce the likelihood of perpetration of aggression and victimization. Likewise, a negative school climate does not necessarily increase that risk. Despite variations in climate, the amount of connectedness experienced by the average student appears to consistently contribute to predicting his likelihood of aggression and victimization.

Social pathologies, such as bullying and victimization, are complex behaviors. Strong student connectedness and healthy school climates are only pieces of the solution to these problems. Nonetheless, understanding the processes and mechanisms through which they operate advances efforts to reduce delinquency and to improve schools' ability to educate students. Future research should focus on these processes and mechanisms, as well as contextual determinants of connectedness and climate. Moreover, further investigation is critical in order to design and implement effective delinquency and school failure interventions.

Students have the right to an educational experience in which they feel valued and respected, where teachers and peers clearly and actively support their development and learning and where they are free from fear, threats and harm. Ensuring this experience for all students should be the ultimate goal of all school initiatives.

Measuring and studying school climate and school connectedness is a difficult task. It is nonetheless crucial in informing students, parents and school professionals as to their efforts in creating an optimal learning environment for students. Students actively avoid school contexts in which they find an unpleasant climate or to which they feel out of place.³ On the other hand, when students, teachers and staff and parents collectively and consciously decide to improve a school environment, successful climate change is possible. It is our hope that the discussion started in this paper will lead to insight, research and interdisciplinary agreement that will inform research, and, in turn, will enhance school climate and promote efforts to develop stronger school connectedness for all students. ■

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